

United Republic of Tanzania

NATIONAL SAMPLE CENSUS OF AGRICULTURE
2002/2003

Volume Vh: REGIONAL REPORT: **LINDI REGION**



Cattle Rearing



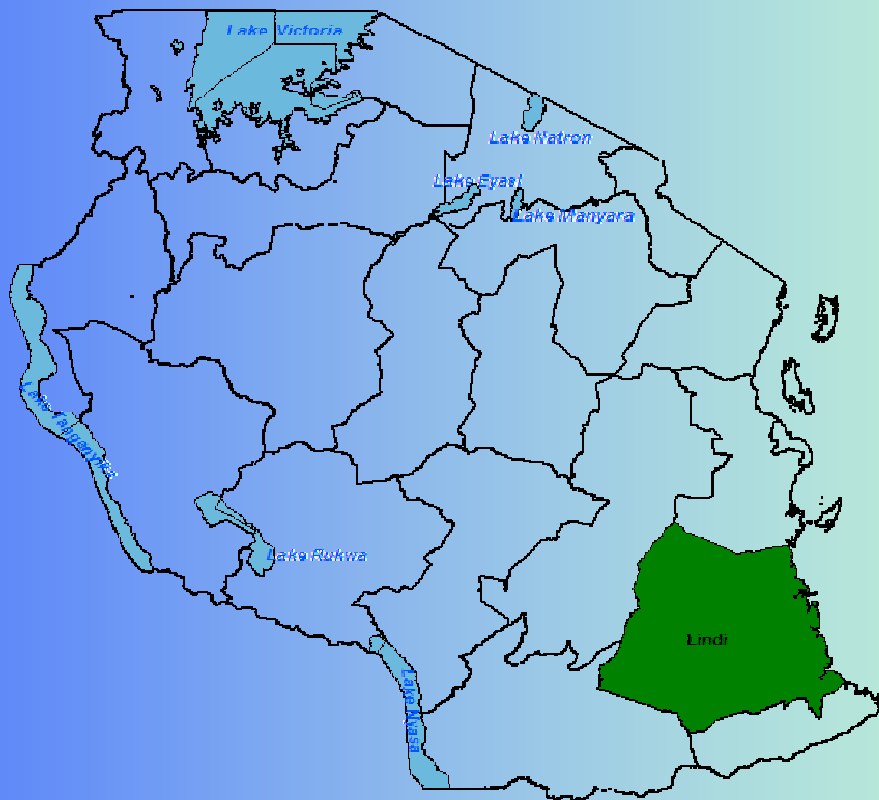
Fish Harvesting



Eggs Production



Maize Planting



Paddy Growing



Hand Cultivation



Indigenous Chicken



Irrigation Practice



Orange Marketing



Cassava Planting



Goat Rearing



United Republic of Tanzania

**NATIONAL SAMPLE CENSUS
OF AGRICULTURE
2002/2003**



VOLUME Vh: REGIONAL REPORT: LINDI REGION

*National Bureau of Statistics, Ministry of agriculture and Food Security,
Ministry of Water and Livestock Development, Ministry of Cooperatives and Marketing,
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ACRONYMS

<i>ASDP</i>	<i>Agricultural Sector Development Project</i>
<i>CSPro</i>	<i>Census and Survey Processing Program</i>
<i>DFID</i>	<i>Department For International Development</i>
<i>DIAS</i>	<i>District Integrated Agricultural Survey</i>
<i>DS</i>	<i>District Supervisor</i>
<i>EAS</i>	<i>Expanded Agricultural Survey</i>
<i>EAs</i>	<i>Enumeration Areas</i>
<i>EU</i>	<i>European Union</i>
<i>FE</i>	<i>Field Enumerator</i>
<i>GDP</i>	<i>Gross Domestic Product</i>
<i>Ha</i>	<i>Hectares</i>
<i>IAS</i>	<i>Integrated Agricultural Survey</i>
<i>ICR</i>	<i>Intelligent Character Recognition</i>
<i>IEC</i>	<i>Information, Education and Communication</i>
<i>JICA</i>	<i>Japanese International Cooperation Agency</i>
<i>LRS</i>	<i>Long Rainy Season,</i>
<i>MAFS</i>	<i>Ministry of Agriculture and Food Security</i>
<i>MCM</i>	<i>Ministry of Co-operatives and Marketing</i>
<i>MWLD</i>	<i>Ministry of Water and Livestock Development</i>
<i>NBS</i>	<i>National Bureau of Statistics</i>
<i>NGO</i>	<i>Non Governmental Organization</i>
<i>NMS</i>	<i>National Master Sample</i>
<i>NSCA</i>	<i>National Sample Census of Agriculture</i>
<i>NSGRP</i>	<i>National Strategy for Growth and Reduction of Poverty</i>
<i>PORALG</i>	<i>President’s Office, Regional Administration and Local Government</i>
<i>PPS</i>	<i>Probability Proportional to Size</i>
<i>PSU</i>	<i>Primary Sampling Unit</i>
<i>RAAS</i>	<i>Rapid Appraisal Agricultural Survey</i>
<i>RS</i>	<i>Regional Supervisor</i>
<i>RSM</i>	<i>Regional Statistical Manager</i>
<i>SAC</i>	<i>Scotts Agriculture Consultancy Ltd</i>
<i>SPSS</i>	<i>Statistical Package for Social Science</i>
<i>SRS</i>	<i>Short Rainy Season</i>
<i>TOT</i>	<i>Training of Trainers</i>
<i>ULG</i>	<i>Ultek Laurence Gould</i>
<i>UNDP</i>	<i>United Nations Development Programme</i>
<i>UNFAO</i>	<i>United Nations Food and Agriculture Organization</i>
<i>VPO</i>	<i>Vice President Office</i>

PREFACE

At the end of the 2002/03 Agriculture Year, the National Bureau of Statistics and the Office of the Chief Government Statistician in Zanzibar in collaboration with the Ministries of Agriculture and Food Security; Water and Livestock Development; Cooperatives and Marketing as well as the Presidents Office, Regional Administration and Local Government (PORALG) conducted the Agriculture Sample Census. This is the third Agriculture Census to be carried out in Tanzania, the first one was conducted in 1971/72, the second in 1993/94 and 1994/95 (during 1993/94 data on household characteristics and livestock count were collected and data on crop area and production in 1994/95).

It is considered that this census is one of the largest to be carried out in Africa and indeed in many other countries of the world. The census collected detailed data on crop production, crop marketing, crop storage, livestock production, fish farming, tree farming, access to infrastructures and services and poverty indicators.

In addition to this, the census was large in its coverage as it provides data that can be disaggregated at district level and thus allow comparisons with the 1998/99 District Integrated Agricultural Survey. The census covered smallholders in rural areas only and large scale farms. This report presents Lindi region data disaggregated to district level. It was very difficult to discuss all variables collected in a single report hence the analysis was based on the most important smallholder variables. The rest of the variables are found in the attached annex of table of results. The analysis in the report includes time series comparisons using data from the previous censuses and surveys.

The extensive nature of the census in relation to its scope and coverage is a result of the increasing demand for more detailed information to assist in the proper planning of this sector and in the administrative decentralization of planning to district level. It is hoped that this report will provide new insights for planners, policy makers, researchers and others involved in the agricultural sector in order to improve the prevailing conditions faced by crop producers and livestock keepers in the country.

On behalf of the Government of Tanzania, I wish to express my appreciation for the financial support provided by the development partners, in particular, the European Union as well as DFID, UNDP, Japanese Government, JICA and others who contributed through the pool fund mechanism.

Finally, my appreciation goes to all those who in one-way or the other contributed to the success of the survey. In particular, I would also like to mention the enormous effort made by the Planning Group composed of professionals from the Agriculture Statistics Department of the National Bureau of Statistics (NBS), the Office of the Chief Government Statistician in Zanzibar (OCGS) and the Statistics Unit of the Ministry of Agriculture and Food Security (MAFS) with technical assistance provided by Ultec Lawrence Gould (ULG), Scotts Agriculture Consultancy Ltd and the Food and Agriculture Organization of the United Nations (FAO).

Additionally, I would like to extend my appreciation to all professional staff of the National Bureau of Statistics, the sector Ministries of Agriculture and PORALG, the Consultants as well as Regional and District Supervisors and field enumerators for their commendable work. Certainly without their dedication, the census would not have been such a success.

Albina A. Chuwa
The Director General
National Bureau of Statistics

EXECUTIVE SUMMARY

The executive summary highlights the main survey results obtained during the National Sample Census of Agriculture 2002/03. This report covers small-scale agriculture households in rural areas of Lindi region who were selected using statistical sampling techniques. The results in the report do not cover urban areas and large-scale farmers.

The highlights describe the important findings on agricultural production, productivity, husbandry, access to resources, levels of involvement in agricultural related activities and poverty in Lindi region. It provides an overview of the rural agricultural households and their levels of involvement in agricultural related activities.

i) Household Characteristics

The number of agricultural households in Lindi region were 153,173 out of which 138,034 (90.1%) were involved in growing crops only, 159 (0.1%) were rearing livestock only, and 14,981 (9.8%) were involved in crop production as well as livestock keeping. In summary, Lindi region had 153,015 households involved in crop production and 15,139 involved in livestock production.

Most of the agricultural households ranked annual crop farming as an activity that provided most of their cash income followed by tree/forest resources, off farm income, permanent crop farming, livestock keeping/herding, remittances and fishing/hunting.

The region has a literacy rate of 59 percent. The district with the highest literacy rate was Nachingwea district (66%) followed by Lindi Urban district (64%), Liwale district (63%) and Ruangwa (59%). Kilwa and Lindi Rural districts had the lowest literacy rates of 57 and 54 percent respectively. The literacy rate for the heads of households in the region was 65 percent.

The number of heads of agricultural households with formal education in Lindi region was 95,471 (62.3%), those without formal education were 57,702 (37.6%) and those with only adult education were 4,660 (3%). The majority of heads of agricultural households (60.3%) had primary level education whereas only 2.0 percent had education that was above primary education.

In Lindi region 79,211 household members (71.2%) had only one aged 5 years and above engaged in off farm income generating activities and 22,672 households (20.4%) had two members in off farm income generating activities and 9,345 (8.4%) had more than two members engaged in such activities.

ii) Crop Production

▪ Land Area

The total area of land available to smallholders was 339,483 ha. The regional average land area utilised for crop production per crop growing household was 1.8 ha. This figure was slightly lower than the national average of 2.0 hectares.

▪ Planted Area

The area planted with annual crops and vegetables was 195,785 hectares planted during wet season.

An estimated area of 122,420 ha (62.7% of the total planted area with annual and vegetable crops) was planted with cereals, followed by roots and tubers 47,189 ha (24.1%), oil seeds and oil nuts 18,782 ha (9.6%), pulses, 6,016 ha (3.1%), fruits and vegetables 946 ha (0.5%).

▪ **Maize**

Maize was the dominant annual crop grown in Lindi region and it had a planted area 1.5 times greater than cassava, which had the second largest planted area. The area planted with maize constituted 37 percent of the total area planted with annual crops. Other crops in order of their importance (based on area planted) were cassava, sorghum, paddy, simsim, cowpeas, bambaranuts, tomatoes, pumpkins and sweet potatoes.

There was a sharp increase in maize production in 1996. Maize production remained the same over the two year period from 1998 to 1999 after which the production declined until over the remaining period up to 2003. The average area planted with maize per household was 0.56 hectares; however it ranged from 0.42 hectares in Lindi Rural district to 0.77 hectares in Liwale district. Nachingwea district had the largest area of maize (22,714 ha) followed by Lindi Rural (14,876 ha), Ruangwa (14,191 ha), Kilwa (11,056 ha), Liwale (7,658 ha) and Lindi Urban (975 ha)

▪ **Sorghum**

Sorghum was the second most important cereal crop in the region in terms of planted area. The number of households that grew sorghum in Lindi region during the long rainy season was 76,620 which were 51 percent of the total crop growing households in Lindi region in the long rainy season. The total production of sorghum was 9,768 tonnes from a planted area of 34,872 hectares resulting in a yield of 0.28 t/ha

▪ **Cassava**

The number of households growing cassava in the region was 88,540. This represented 58 percent of the total crop growing households in the region. The total production of cassava during the census year was 25,814 tonnes from a planted area 46,788 hectares resulting in a yield of 0.6 t/ha.

▪ **Fruit and Vegetables**

The total production of fruit and vegetables was 3,160 tonnes. The most cultivated fruit and vegetable crop was the tomatoe. The production for this crop was 2,177 tonnes (69% percent of the total fruit and vegetable production) followed by onions (405 tonnes, 13%), okra (278 tonnes, 9%) and pumpkins (1,262 tonnes, 8%). The production of the other fruit and vegetable crops was relatively small.

▪ **Permanent Crops**

The most important permanent crop in Lindi region was a cashew tree which had a planted area of 55,683 ha, (67.5% of the planted area of all permanent crops) followed by pigeon peas (14,142 ha, 17.1%), coconut (8,381 ha, 10.2%), orange (1,869 ha, 2.3%), mango (1,830 ha, 2.2%), banana (437 ha, 0.53%), sugarcane (56 ha, 0.07%), guava (19 ha, 0.02%) and avocado (11 ha, 0.01).

- **Crop Extension Services**

The number of Agricultural households that received crop extension was 25,571 (16.7% of total crop growing households in the region) Some districts had more access to extension services than others, with Nachingwea having a relatively high proportion of households (37%) that received crop extension messages in the district followed by Lindi Urban (28%), Lindi Rural (21%), Ruangwa (15%), Kilwa (14%) and Liwale (9%)

- **Soil Erosion and Water Harvesting facilities**

The number of agricultural households that had soil erosion and water harvesting facilities on their farms was 998. This number represented 1 percent of total number of agricultural households in the region.

The proportion of households with soil erosion control and water harvesting facilities was highest in Nachingwea District (61%) followed by Lindi Rural (21%), Liwale (11%) and Ruangwa (7%).

- iii) **Livestock and Poultry Production**

- **Cattle**

The number of indigenous cattle in Lindi region was 2,019 (65.5 % of the total number of cattle in the region), 998 cattle (32.4%) were dairy breeds and 64 cattle (2.1%) were beef breeds.

The census results show that 838 agricultural households (0.5% of the total agricultural households) kept 308 cattle. This was equivalent to an average of 4 heads of cattle per cattle-keeping-household. The district with the largest number of cattle was Lindi Rural which had about 1,300 (42%) cattle. Other districts and their respective estimated number of cattle were Lindi Urban 1,080 (35%) and Nachingwea 700 (23%).

- **Goats**

The number of goat-rearing-households in the region was 14,084 (9.2% of all agricultural households) with a total of 110,506 goats giving an average of 8 head of goats per goat-rearing-households. Lindi Rural had the largest number of goats estimated at 42,758 (39% of all goats in the region) followed by Kilwa 20,531 (19%), Nachingwea 18,807 (17%), Ruangwa 12,200 (11%), Lindi Urban 9,694 (9%) and Liwale 6,515 (6%).

- **Sheep**

The number of sheep-rearing households was 1,555 (1% of all agricultural households in Lindi region) rearing 11,905 sheep, giving an average of 8 heads of sheep per sheep-rearing household. The district with the largest number of sheep was Lindi Rural with 4,464 sheep (37%of total sheep in Lindi region) followed by Ruangwa (3,678 sheep, 31%), Nachingwea (2,285 sheep, 19%) and Liwale (926 sheep, 8%). Lindi Urban District had the least number of sheep (552 sheep, 5%)

- **Pigs**

The number of pig-rearing agricultural households in Lindi region was 1,407 (1% of the total agricultural households in the region) rearing 4,956 pigs. This gives an average of 4 pigs per pig-rearing household.

- **Chicken**

The number of households keeping chicken was 83,711 raising about 1,261,290 chickens. This gives an average of 15 chickens per chicken-rearing household. In terms of total number of chickens in the country, Lindi region was ranked 14th out of the 21 Mainland regions.

- **Use of Draft Power**

In Lindi region the use of draft power was very minimal

- **Fish Farming**

Fish farming was not practiced in the region.

- iv) **Poverty Indicators**

- **Availability of Toilets**

A large number of rural agricultural households used traditional pit latrines (142,796 households, 93.2% of all rural agricultural households) 2,302 households (1.5%) used flush toilets and 481(0.3%) used improved pit latrines. However, 7,594 households (5% of agricultural households in the region) had no toilet facilities

- **Energy for Cooking**

The most prevalent source of energy for cooking was firewood, which was used by 97.66 percent of all rural agricultural households in Lindi region. This was followed by charcoal (1.77%). The rest of energy sources accounted for 0.57 percent. These were mains electricity (0.24%) crop residues (0.12%), livestock dung (0.01%), solar (0.05%), paraffin/kerosene (0.02%) and bottled gas (0.02%).

- **Roofing Materials**

The most common roofing material for the main dwelling was grass and/or leaves and it was used by 81.3 percent of the rural agricultural households. This was followed by iron sheets (15.4%), grass/mud (1.7%), tiles (1.2%), asbestos (0.2%), and concrete (0.1%).

Grass/leaves were the main roofing material used in Lindi region. Kilwa district had the highest percentage of households with grass/leaves roofing (87%) followed by Lindi Rural and Nachingwea districts (83%), Ruangwa (76%), Lindi Urban and Liwale (73%).

- **Number of Meals per Day**

The majority of households in Lindi region normally took 2 meals per day (51.3 percent of the households in the region). This was followed by 3 meals per day (41.4 percent) and 1 meal per day (7.1 percent). Only 0.2 percent of the households had 4 meals per day

- **Food Security**

In Lindi region, 50,993 households (33.3% of the total agricultural households in the region) said they rarely experienced problems in satisfying the household food requirements. However 11,975 (7.8%) said they sometimes experience problems, 16.4 often experienced problems and 9.9 percent always had problems in satisfying the household food requirements. About 32.5 percent of the agricultural households said they did not experience any food sufficiency problems

- **Main Source of Cash Income**

The main cash income of the households in Lindi region was from selling cash crops (40.9 percent of smallholder households), followed by selling of food crops (19.7%), casual labour (15.3%), businesses (6.9%), cash remittances (5%), forest products (4.5%), fishing (2.5%) and wages/salaries (2.2%). Only 1.6% of smallholder households reported the selling of livestock as their main source of income, followed by other sources (0.8%) and livestock products (0.5%)

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1. BACKGROUND INFORMATION

1.1 Introduction

This part of the report presents a brief description of the regional profile by providing information on geographical location, land area, climate, administrative set up, population and socio-economic indicators. The information will provide the user with a general understanding of the region and its resources.

1.2 Geographical Location and Boundaries

Lindi Region was established in 1971. The region comprises six districts namely Lindi Rural, Kilwa, Nachingwea, Liwale, Ruangwa and Lindi Urban. The regional headquarters is located in Lindi Urban District.

Lindi region is situated in Southern Tanzania between latitudes 7° 55' and 10° 50' South of the equator and longitudes 36° 51' to 40° East. Lindi shares borders with Coast region to the North, Indian Ocean to the East, Mtwara region to the South, Morogoro region to the West and Ruvuma region on the South-West.

1.3 Land Area

The region has an area 67,000 square kilometers (7.56% of Tanzania Mainland's area). About a quarter of the region (18,000 square kilometers) is part of the Selous Game Reserve.

1.4 Climate

1.4.1 Temperature

The dominant climate is hot and humid. The normal temperature throughout the year is between 24.5 °C and 27 °C. However, air temperatures have a monthly mean ranging from 22.2 °C in Nachingwea in July to 27.7° C in Kilwa in March. Humidity averages 87% in Lindi Town in March and April.

1.4.2 Rainfall

The region has one rainy season which is the long rainy (masika) from November/December to April/May. The annual rainfall ranges between 980 mm to 1,200 mm.

1.5 Population

According to the 2002 Population and Housing Census, there were 791,306 inhabitants in Lindi region. District population was: Kilwa (171,850), Lindi Urban (41,549), Lindi Rural (215,764), Liwale (75,546), Nachingwea (162,081) and Ruangwa (124,516). In terms of population, Lindi region ranked 10th out of the 21 regions in Tanzania.

1.6 Socio - Economic Indicators

The regional Gross Domestic Product (GDP) at current prices for the year 2003 was estimated to be TShs 229,264 million with a per capita income of shillings 287,688. The region held 19th position among regions on GDP and contributed about 2.3 percent to the national GDP¹

The region is famous for producing food crops. The main food crops produced in Lindi region include: maize, cassava, sorghum, paddy, and simsim.

¹ Hali ya Uchumi wa Taifa Katika Mwaka 2003

2. INTRODUCTION

This part of the report provides the technical and operational description of the National Sample Census of Agriculture (NSCA), carried out in the rural areas of Tanzania Mainland and Zanzibar during the 2002/03 agricultural year. It details the background and the rationale for carrying out the NSCA in 2002/03 agricultural year. It also explains the sampling procedures, designing and implementation of the data processing system.

2.1 The Rationale for Conducting the National Sample Census of Agriculture

In 2003, the Government of Tanzania launched the Agricultural Sample Census as an important part of the Poverty Monitoring Master Plan which supports the production of statistics for advocacy of effective public policy, including poverty reduction, access to services, gender, as well as the standard crop production data normally collected in an agriculture census. The census is intended to fill the information gap and support planning and policy formulation by high level decision making bodies. It is also meant to provide critical benchmark data for monitoring Agriculture Sector Development Programme (ASDP) and other agriculture and rural development programs as well as prioritising specific interventions of most agriculture and rural development programs.

Following the decentralisation of the Government's administration and planning functions, there has been a pressing need for agriculture and rural development data disaggregated at regional and district levels. The provision of district level estimates will provide essential baseline information on the state of agriculture and support decision making by the Local Government Authorities in the design of District Agricultural Development and Investment Projects (DADIPS). The increase in investment is an essential element in the national strategy for growth and reduction of poverty.

This report (Volume V) is among the 21 regional reports for the mainland. Other Census reports include the Technical Report (Volume I), crop sector at national and regional levels including Zanzibar estimates (Volume II), Livestock Report (Volume III), Smallholder Household Characteristics and Access to Natural Resources Report (Volume IV), 21 Regional Reports for the Mainland (Volume V), Large Scale Farms Report (Volume VI) and a separate report for Zanzibar (Volume VII). In order to address the specific issue of gender, a separate thematic report on gender has been published. Other thematic reports will be produced depending on the demand and availability of funds. In addition to these reports two dissemination applications have been produced to allow users to create their own tabulations, charts and maps.

The report is divided into five main sections: Background Information, Introduction, Results, Evaluation and Conclusion and Appendices. The definitions relating to all aspects of this report can be found in the questionnaire (Appendix III).

2.2 Census Objectives

The 2003 Agriculture Sample Census was designed to meet the data needs of a wide range of users down to district level including policy makers at local, regional and national levels, rural development agencies, funding institutions, researchers, Non government Organisations (NGOs), farmer organisations, etc. As a result, the dataset is both more numerous in its sample and detailed in its scope compared to previous censuses and surveys. To date this is the most detailed Agricultural Census carried out in Africa. The census was carried out in order to:

- Identify structural changes if any, in the size of farm household holdings, crop and livestock production, farm input and implement use. It also seeks to determine if there are any improvements in rural infrastructure and in the level of agriculture household living conditions;

-
- Provide benchmark data on productivity, production and agricultural practices in relation to policies and interventions promoted by the Ministry of Agriculture and Food Security and other stake holders.
 - Establish baseline data for the measurement of the impact of high level objectives of the Agriculture Sector Development Programme (ASDP), National Strategy for Growth and Reduction of Poverty (NSGRP) and other rural development programs and projects.
 - Obtain benchmark data that will be used to address specific issues such as: food security, rural poverty, gender, agro-processing, marketing, service delivery, etc.

2.3 Census Coverage and Scope

The census was conducted for both large and small scale farms. The National Sample Census of Agriculture covered a total of 3,221 selected rural villages of Tanzania Mainland out of which 215 villages were from Lindi region.

The census covered agriculture in detail as well as many other aspects of rural development and was conducted using three types of questionnaires:

- Small scale farm questionnaire
- Community level questionnaire
- Large scale farm questionnaire

The small scale farm questionnaire was the main census instrument and it includes questions related to crop and livestock production and practices; population demographics; access to services, resources and infrastructure; issues on poverty, gender and subsistence versus profit making production units. The main sections covered are as follows:

- Identification (i.e. region, district, ward and village)
- Household and holding characteristics
- Household information
- Land ownership/tenure
- Land use
- Access and use of resources
- Crop and vegetable production
- Agro processing and by-Products
- Crop storage and marketing
- On-farm investment
- Access to farm inputs and implements
- Use of credit for agricultural purposes
- Tree farming/agro-forestry
- Crop extension services
- Livelihood constraints
- Animal contribution to crop production
- Livestock
- Livestock products
- Fish farming
- Livestock extension

- Labour use
- Access to infrastructure and other services
- Household facilities

The community level questionnaire was designed to collect village level data such as access and use of common resources, community tree plantation and seasonal farm gate prices.

The large scale farm questionnaire was administered to large scale farms that were either privately or corporately managed. There will be a national report on large scale farming on Tanzania Mainland.

2.4 Legal Authority of the National Sample Census of Agriculture

The NSCA 2002/03 was conducted under the legal authority of the 2000 National Bureau of Statistics Act which, among other things, makes data collected from individuals strictly confidential and to be used for statistical purposes only.

2.5 Reference Period

Two types of reference periods were used namely the agricultural year and the reference date for livestock enumeration. The agricultural year 2002/03 (that is October 2002 to September 2003) was used for the data items that are related to crop production. The reference date of enumeration for livestock and poultry count was 1st October 2003.

2.6 Census Methodology

The main focus at all stages of the census execution was on data quality and this is emphasised in this section. The main activities undertaken include:

- Census organisation
- Tabulation plan preparation
- Sample design
- Design of census questionnaires and other instruments.
- Field pretesting of the census instruments
- Training of trainers, supervisors and enumerators
- Information Education and Communication (IEC) campaign
- Data Collection
- Field supervision and consistency checks
- Data processing:
 - Scanning
 - ICR extraction of data
 - Structure formatting application
 - Batch validation application
 - Manual data entry application
 - Tabulation preparation using SPSS
- Table formatting and charts using Excel, map generation using ArcView and Freehand.
- Report preparation using Word and Excel.

2.6.1 Census Organization

The Census was conducted by the National Bureau of Statistics in collaboration with the sector ministries of agriculture, and the Office of the Chief Government Statistician in Zanzibar. At the national level the Census was headed by the Director General of the National Bureau of Statistics with assistance from the Director of Economic Statistics. The Planning Group, made up of staff from the National Bureau of Statistics, Department of Agricultural Statistics and three representatives from the Ministry of Agriculture and Food Security (Department of Policy and Planning), oversaw the overall operational aspects of the Census. At the regional level, implementation of census activities was overseen by the Regional Statistical Officer of NBS and the Regional Agriculture Supervisor from the Ministry of Agriculture and Food Security. At the District level, two supervisors from the President's Office, Regional Administration and Local Government (PORALG), managed the enumerators who also came from the same ministry.

Members of the Planning Group had a minimum qualification of a bachelor degree; the regional supervisors were agricultural economists, statisticians or statistical officers. The district supervisors and enumerators had diploma level qualifications in agriculture.

The Census and Surveys Technical Working Group provided support in sourcing financing, approving budget allocations and technical assistance inputs as well as monitoring the progress of the census. A Technical Committee for the census was established with members from key stakeholder organisations (i.e. NBS, sector ministries of agriculture, President's Office, Planning and Privatization (POPP), PORALG, University of Dar es Salaam (UDSM), Tanzania Food and Nutrition Centre (TFNC) and the Office of Chief Government Statistician (OCGS) in Zanzibar). The main function of the committee was to approve the proposed instruments and procedures developed by the Planning Group. It also approved the tabulations and analytical reports prepared from the Census data.

2.6.2 Tabulation Plan

The tabulation plan was developed following three user group workshops and thus reflects the information needs of the end users. It took into consideration the tabulations from previous census and surveys to allow trend analysis and comparisons.

2.6.3 Sample Design

The Mainland sample consisted of 3,221 villages. These villages were drawn from the National Master Sample (NMS) developed by the National Bureau of Statistics (NBS) to serve as a national framework for the conduct of household based surveys in the country. The National Master Sample was developed from the 2002 Population and Housing Census. In most cases, within each selected village, data was collected from a sub-sample of fifteen agricultural households. In few large villages thirty households were selected. The total Mainland sample was 48,315 agricultural households. In Zanzibar a total of 317 EAs were selected and 4,755 agricultural households were covered. Nationwide, all regions and districts were sampled with the exception of three urban districts (two from Mainland and one from Zanzibar).

In both Mainland and Zanzibar a stratified two stage sample was used. In the first stage, villages/enumeration areas (EAs) were selected with probability proportional to the number of villages in each district. In the second stage, 15 households were selected from a list of farming households in each Village/EA using systematic random

Table 2.1: Census Sample Size

Number of	Mainland	Zanzibar	Total
Households	48,315	4,755	53,070
Villages/Eas	3,221	317	3,539
Districts	117	9	126
Regions	21	5	26

sampling. Table 2.1 gives the sample size of households, villages and districts for Tanzania Mainland and Zanzibar.

2.6.4 Questionnaire Design and Other Census Instruments

The census questionnaires were designed following user/producer meetings to ensure that the information collected was in line with their data needs. Several features were incorporated into the design of the questionnaire to increase the accuracy of the data:

- Where feasible all variables were extensively coded to reduce post enumeration coding error.
- The definitions for each section were printed on the opposite page so that the enumerator could easily refer to the instructions whilst interviewing the farmer.
- The responses to all questions were placed in boxes printed on the questionnaire, with one box per character. This feature made it possible to use scanning and ICR technologies for data entry.
- Skip patterns were used to avoid asking unnecessary questions
- Each section was clearly numbered, which facilitated the use of skip patterns and provided a reference for data type coding for the programming of CSPro, SPSS and the dissemination applications.

Besides the questionnaires, there were other instruments used:

- Village listing forms that were used for listing households in the villages and from this list a systematic sample of 15 agricultural households were selected from each village.
- Training manual which was used by the trainers for the cascade/pyramid training of supervisors and enumerators. This manual was trainers guiding document on the procedures to follow during the training
- Enumerator Instruction Manual which was used as reference material.

2.6.5 Field Pre-Testing of the Census Instruments

The Questionnaire was pre-tested in five locations (Arusha, Dodoma, LINDI, Unguja and Pemba). This was done purposely to test the wording, flow and relevance of the questions and to finalise crop lists, questionnaire coding and manuals. In addition to this, several data collection methodologies had to be finalised, namely, livestock numbers in pastoralist communities, cut flower production, mixed cropping, use of percentages in the questionnaire and finalising skip patterns and documenting consistency checks.

2.6.6 Training of Trainers, Supervisors and Enumerators

Cascade/pyramid training techniques were employed to maintain statistical standards. The top level training was provided to 66 national and regional supervisors (3 per region plus Zanzibar). The trainers were members of the Planning Group and the trainees were from the National Bureau of Statistics and the sector ministries of agriculture. The second level training was for the district supervisors and enumerators. This training was conducted in the regions. In each region three training sessions were conducted for the district supervisors and enumerators. In addition to training in field level Census methodology and definitions, emphasis was placed on training the enumerators and supervisors in consistency checking. Tests were given to the enumerators and supervisors and the best 50 percent of the trainees were selected to administer the smallholder and community level questionnaires. This increased the number of interviews per enumerator but it also released finance to increase the number of supervisors and hence the Supervisor Enumerator Ratio. The household listing exercise was carried out by all trained enumerators.

2.6.7 Information, Education and Communication (IEC) Campaign

Information, Education and Communication (IEC) is an important aspect of any census/survey undertaking. This is due to the fact that inadequately informed and hence uncooperative citizens may jeopardize the entire census/survey. As far as the 2002/03 Agricultural Sample Census was concerned, the main objective of the IEC program was to sensitize and mobilize Tanzanians to support, cooperate and participate in the census exercise.

Radio, television, newspapers, leaflets, t-shirts and caps were used to publicise the Sample Census. T-shirts and caps were used by the field staff and the village chairmen as official uniforms during the field work. The village chairmen helped to locate the selected households.

2.6.8 Household Listing

The household listing exercise was done in seven days. During the listing exercise, forms ACLF1 and ACLF2 were administered. The information collected included the number of fields operated by the household, the number of different types of livestock and poultry. This information was used to determine the agricultural households. From the list of agricultural households, 15 households were selected for the interview. The selection was done using the Random Number Table.

2.6.9 Data Collection

Data collection activities for the 2002/2003 Agricultural Sample Census took three months from January to March 2004. The data collection methods used during the census was by interview and no physical measurements, e.g., crop cutting and field area measurement were taken. Field work was monitored by a hierarchical system of supervisors at the top of which was the Mobile Response Team followed by the national, regional, and district supervisors.

The Mobile Response Team consisted of three principal supervisors who provided overall direction to the field operation and responded to queries arising outside the scope of the training exercise. The mobile response team consisted of the Manager of Agriculture Statistics Department, Long-term Consultant and Desk Officer for the Census. Decisions made on definitions and procedures were then communicated back to all enumerators via the national, regional and district supervisors.

District supervision and enumeration were done by staff from the President's Office, Regional Administration and Local Government (PORALG). National and regional supervisions were provided by senior staff of the National Bureau of Statistics and the sector ministries of agriculture. During the household listing exercise 3,221 extension staff were used. For the enumeration of the small holder questionnaire, 1,611 enumerators were used and additional 5 percent enumerators were held in reserve in case of drop outs during the enumeration exercise.

2.6.10 Field Supervision and Consistency Checks

Enumerators were trained to probe the respondents until they were satisfied with the responses given before they recorded them in the questionnaire. The first check of the questionnaires was done by enumerators in the field during enumeration. The second check was done by the district supervisors followed by regional and national supervisors. Supervisory visits at all levels of supervision focused on consistency checking of the questionnaires. Inconsistencies encountered were corrected, and where necessary a return visit to the respondent was made by the enumerator to obtain the correct

information. Further quality control checks were made through a major post enumeration checking exercise where all questionnaires were checked for consistencies by all supervisors in the district offices.

2.6.11 Data Processing

Data processing consisted of the following processes:

- Manual editing
- Data entry
- Data structure formatting
- Batch validation
- Tabulation
- Illustration production
- Report formatting

Manual Editing

Prior to scanning, all questionnaires underwent a manual cleaning exercise. This involved checking that the questionnaire had a full set of pages, correct identification and good handwriting. A score was given to each questionnaire based on the legibility and the completeness of enumeration. This score will be used to assess the quality of enumeration and supervision in order to select the best field staff for future censuses/surveys.

Data entry/Scanning and ICR extraction technologies

Scanning and ICR data capture technology was used for the small holder questionnaire. This not only increased the speed of data entry, it also increased the accuracy due to the reduction in keystroke errors. Interactive validation routines were incorporated into the ICR software to track errors during the verification process. The scanning operation was so successful that it is highly recommended that this technology be adopted for future censuses/surveys.

The Census and Surveys Processing Program (CSPro) was used to enter 2,880 of small holder questionnaires that were rejected by the Intelligent Character Recognition (ICR) extraction application.

Data structure formatting

A program was developed in visual basic to automatically alter the structure of the output from the scanning/extraction process in order to harmonise it with the manually entered data. The program automatically checked and changed the number of digits for each variable, the record type code, the number of questionnaires in the village, the consistency of the Village Identification (ID) code and saved the data of one village in a file named after the village code.

Batch validation

A batch validation program was developed in order to identify inconsistencies within a questionnaire. This is in addition to the interactive validation during the ICR extraction process. The procedures varied from simple range checking within each variable to more complex checking between variables. It took six months to screen, edit and validate the data from the smallholder questionnaire. After the long process of data cleaning, the results were prepared based on a pre-designed tabulation plan.

Tabulations

Statistical Package for Social Sciences (SPSS) was used to produce the Census results and Microsoft Excel was used to organize the tables and compute additional indicators.

Analysis and report preparation

The analysis in this report focuses on regional and district production estimates, districts comparisons and time series analysis. Microsoft Excel was used to produce charts; whereas Microsoft Word was used to compile the report.

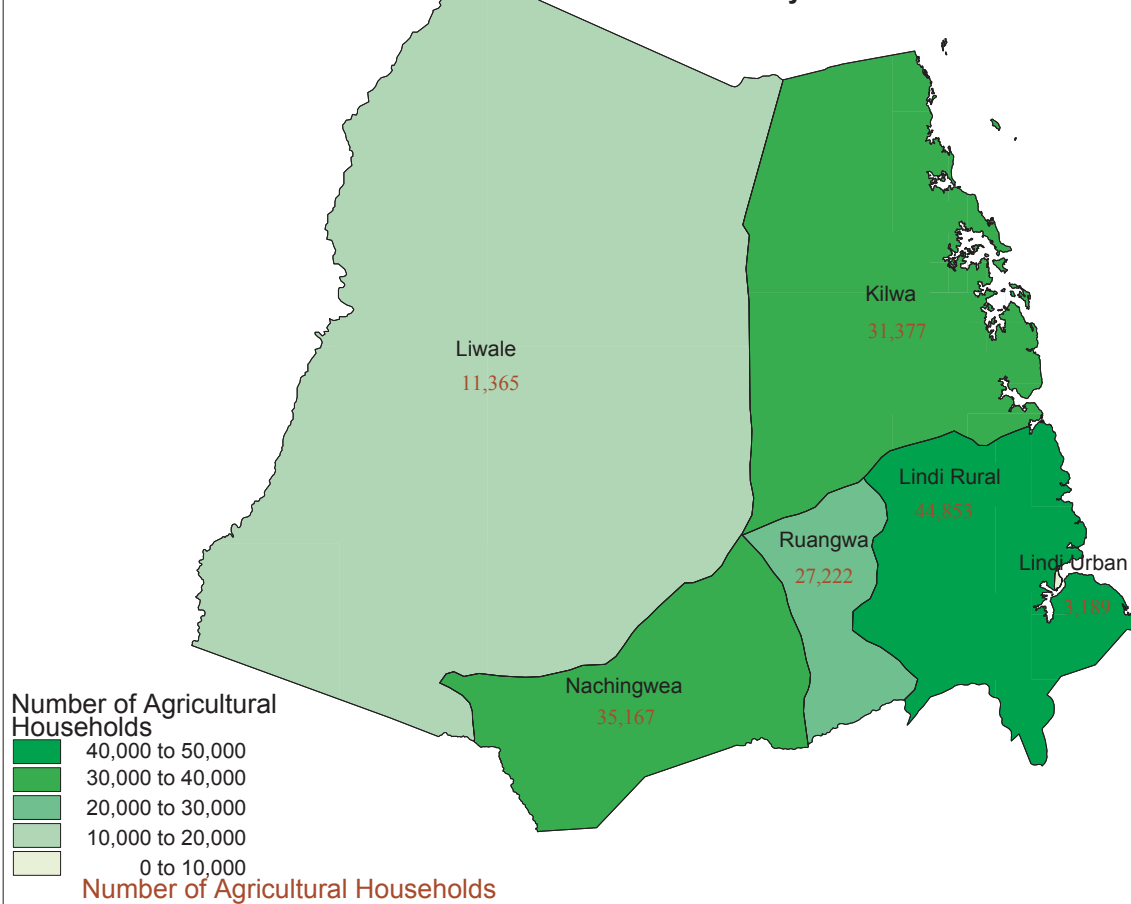
Data quality

A great deal of emphasis was placed on data quality throughout the whole exercise from planning, questionnaire design, training, supervision, data entry, validation and cleaning/editing. As a result of this NBS believes that the Census is highly accurate and representative of what was experienced at field level during the Census year. With very few exceptions the variables in the questionnaire are within the norms for Tanzania and they follow expected time series trends when compared to historical data. Standard Errors and Coefficients of Variation for the main variables can be found in the Technical Report (Volume I).

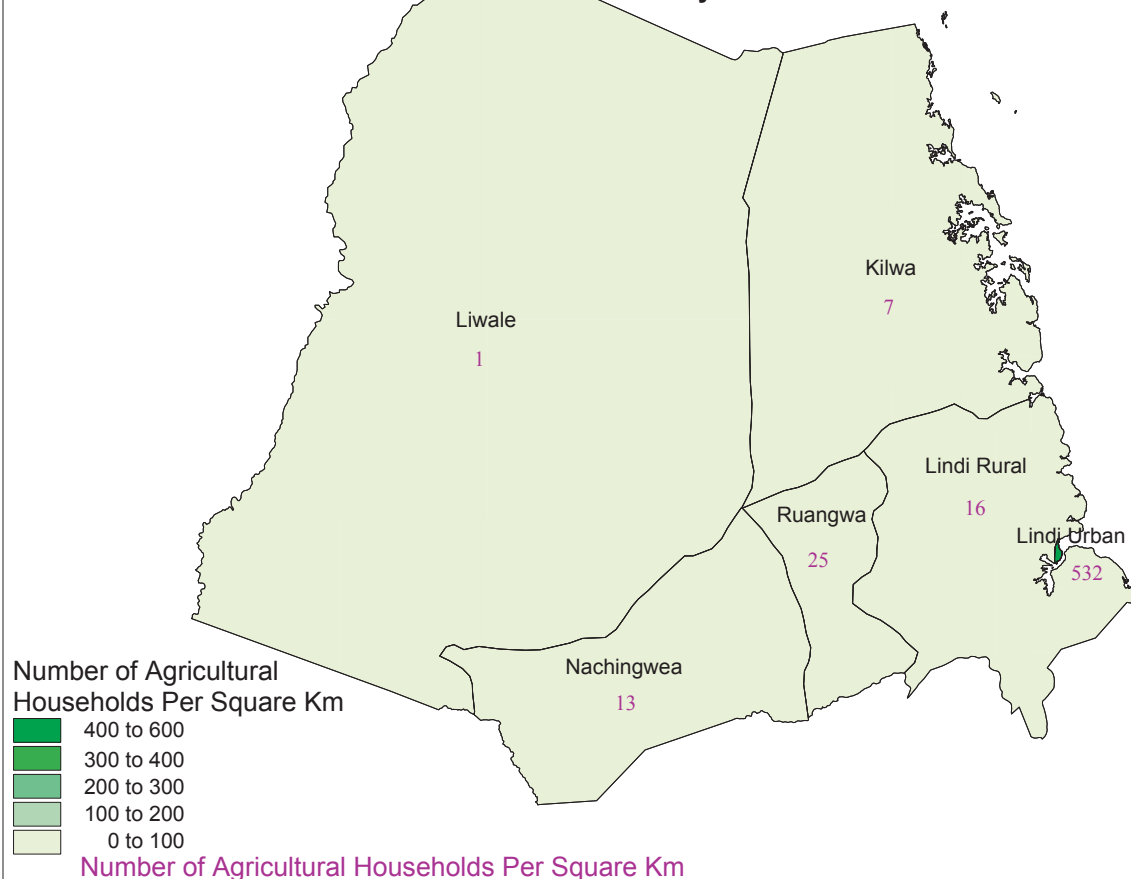
2.7 Funding Arrangements

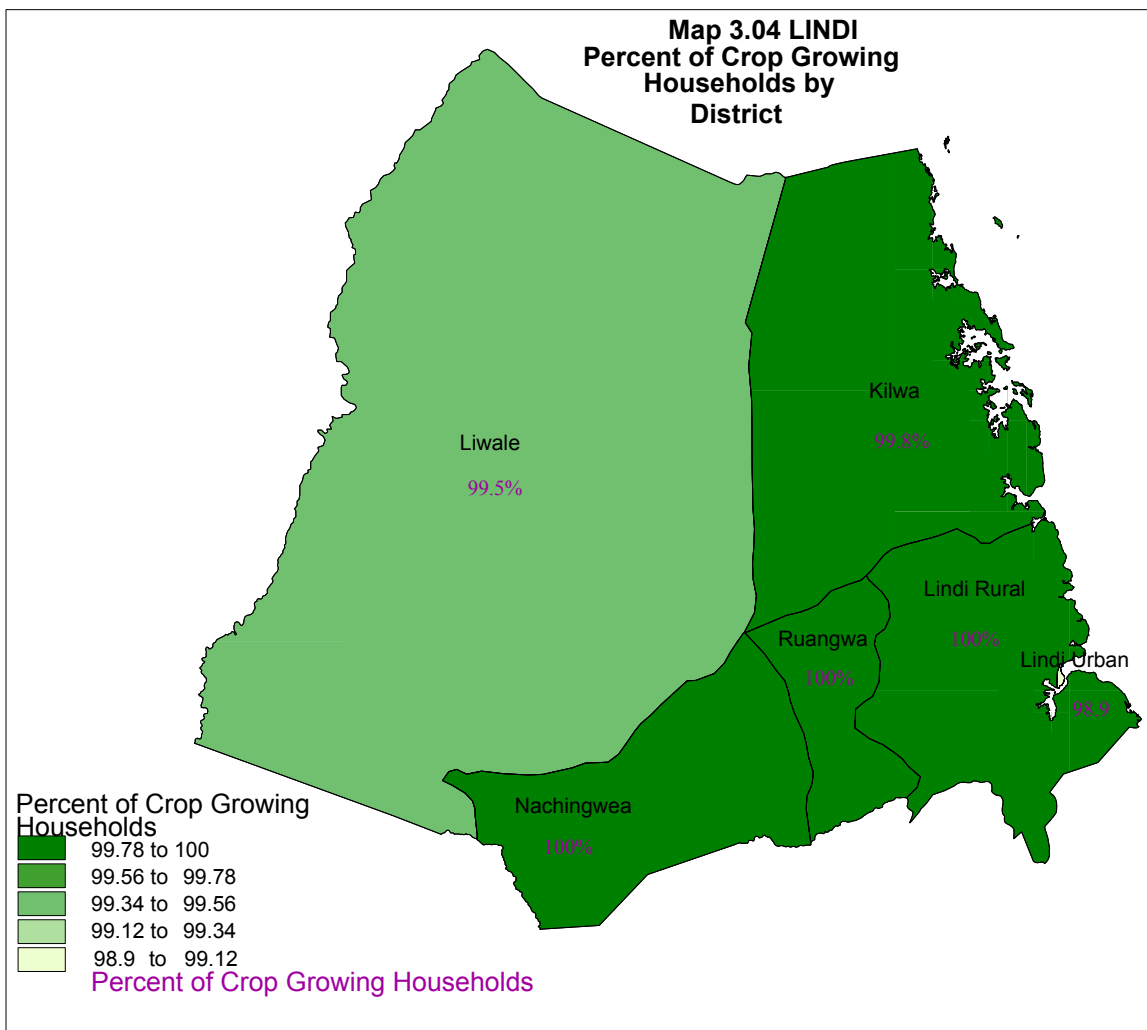
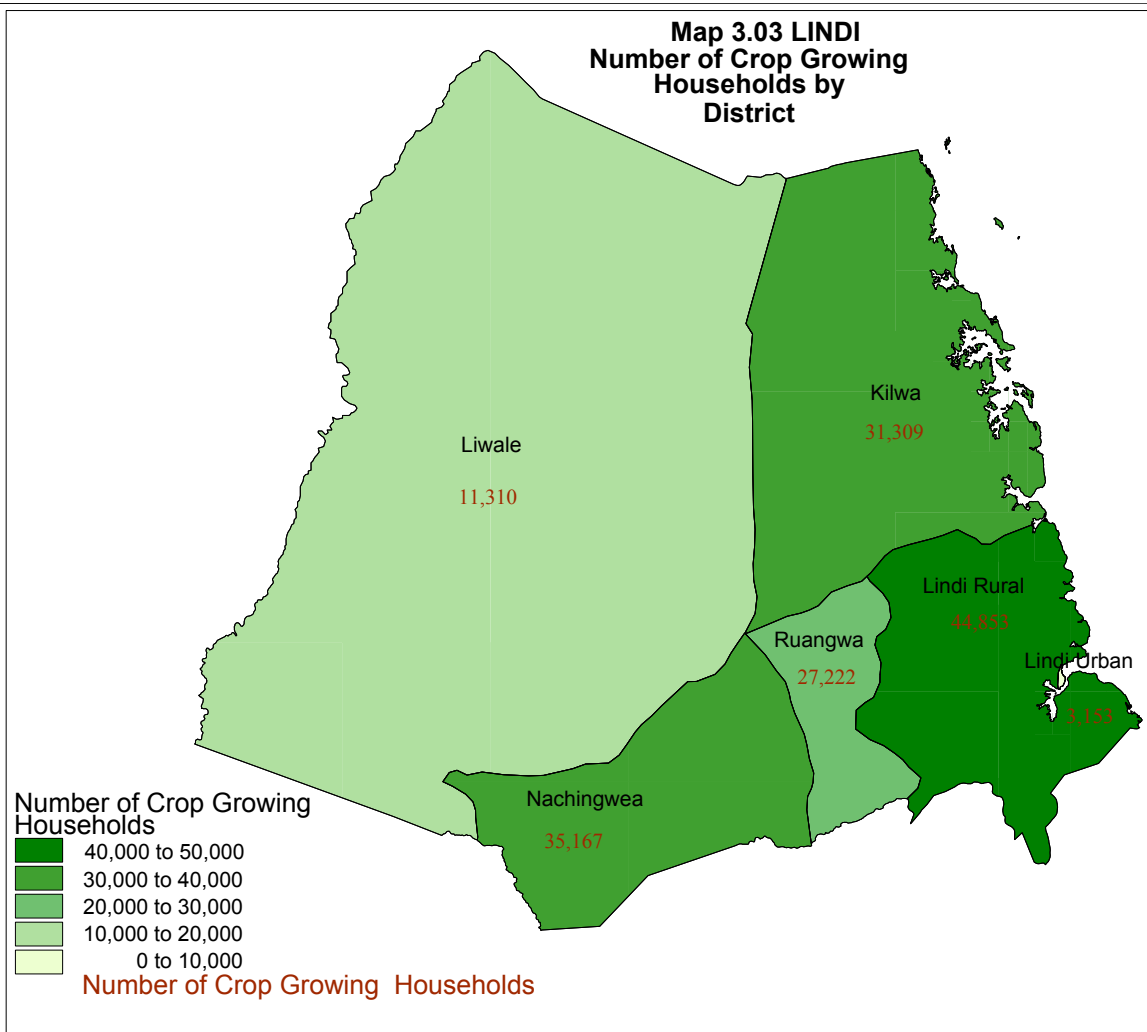
The Agricultural Sample Census was supported mainly by the European Union (EU) who financed most of the operational activities. Other funds for operational activities came from the Government of Tanzania, Government of Japan, United Nations Development Programme (UNDP) and other partners in the Pool Fund of the Vice President's Office (VPO). In addition to this, technical assistance was provided by the European Union (EU), Department for International Development (DFID) and Japanese International Cooperation Agency (JICA). Technical assistances were managed by Ultek Laurence Gould Consultants (ULG), Scott's Agriculture Consultancy Ltd (SAC) and the Food and Agriculture Organisation (FAO).

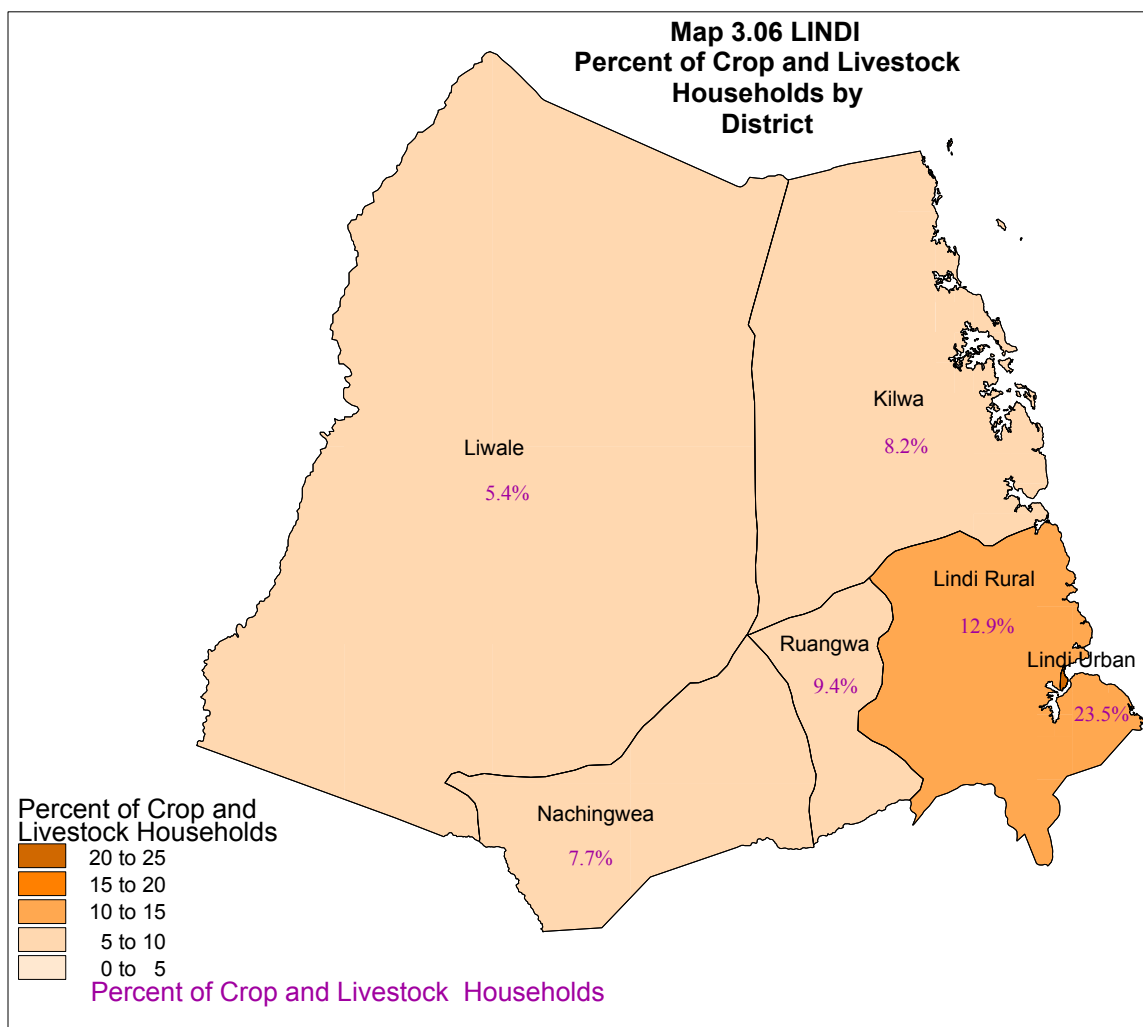
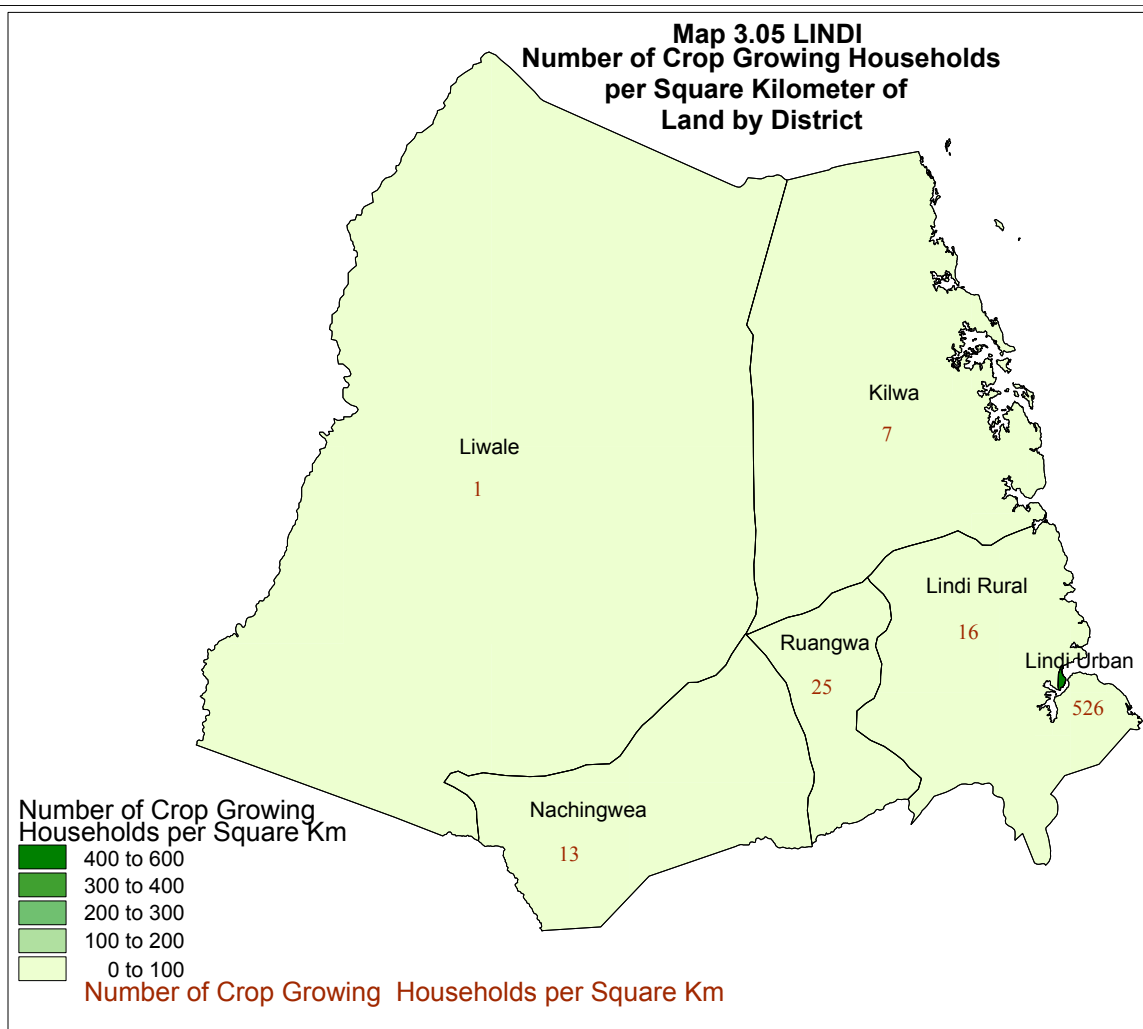
Map 3.01 LINDI
Total Number of Agricultural
Households by District



Map 3.02 LINDI
Number of Agricultural Households
Per Square Kilometer of Land
by District

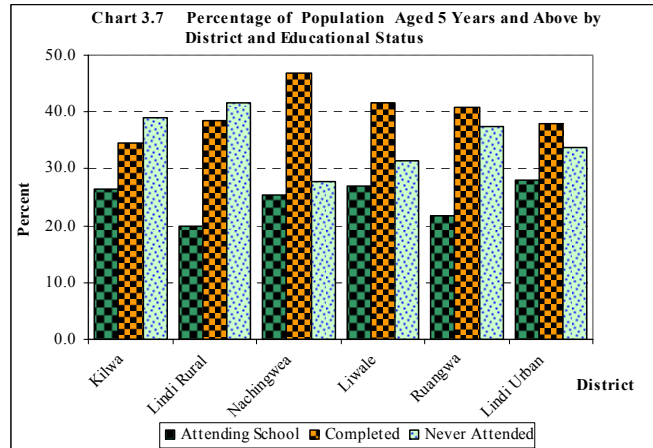
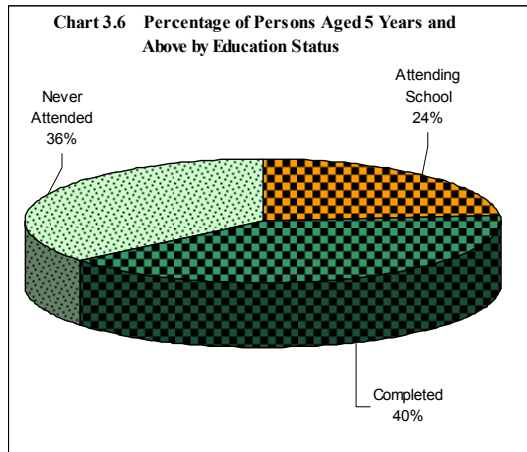






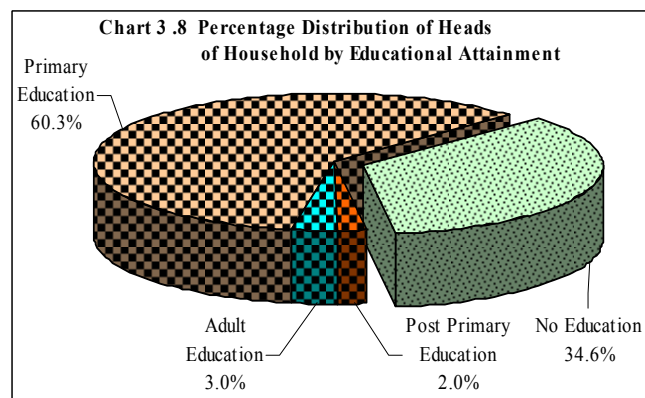
Educational Status

Information on educational status was collected from individual agricultural households. The results show that 40 percent of the population aged 5 years and above in agricultural households in the region had completed different levels of education and 24 percent were still attending school. Those who have never attended school were 36 percent (Chart 3.6).

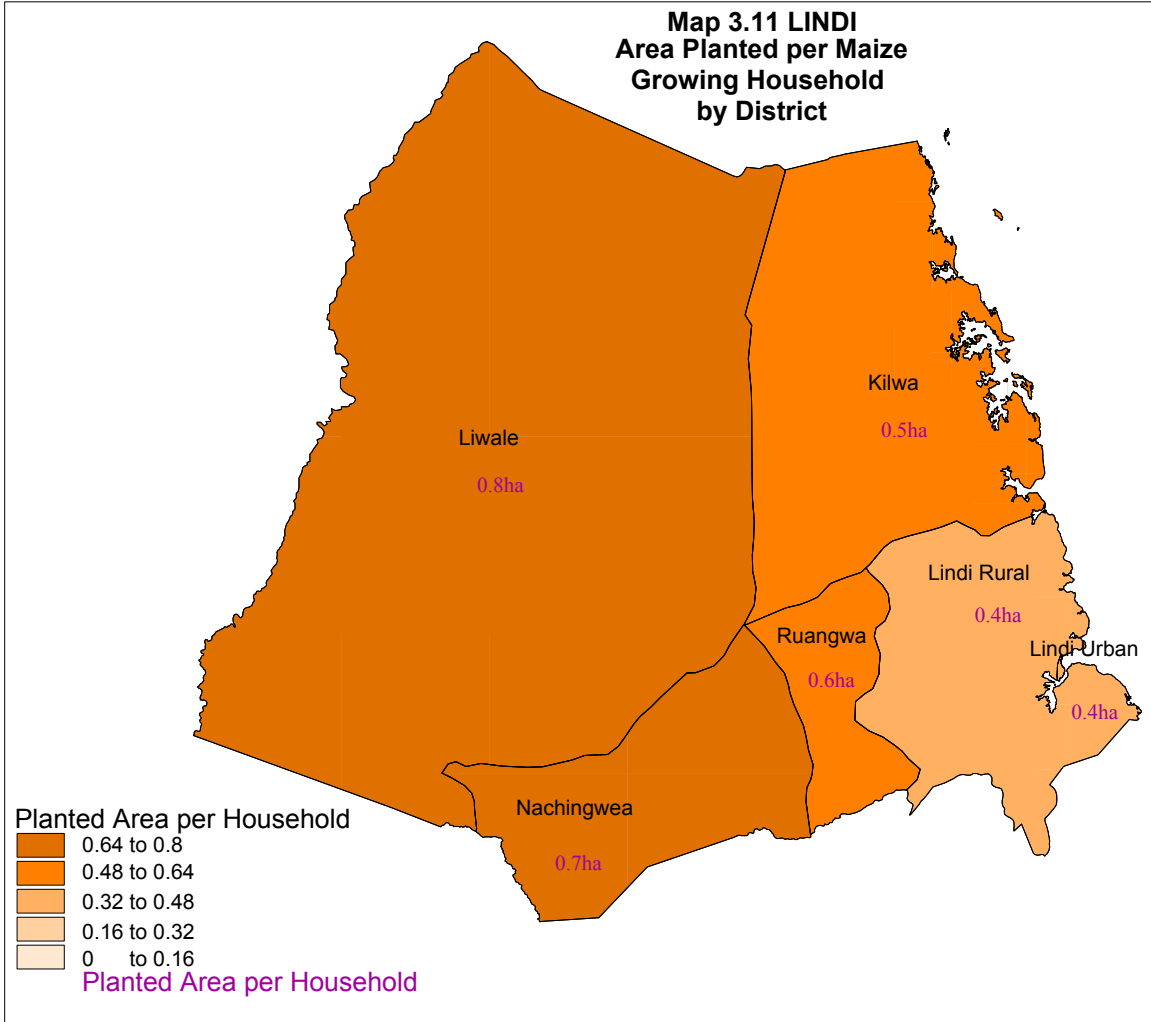
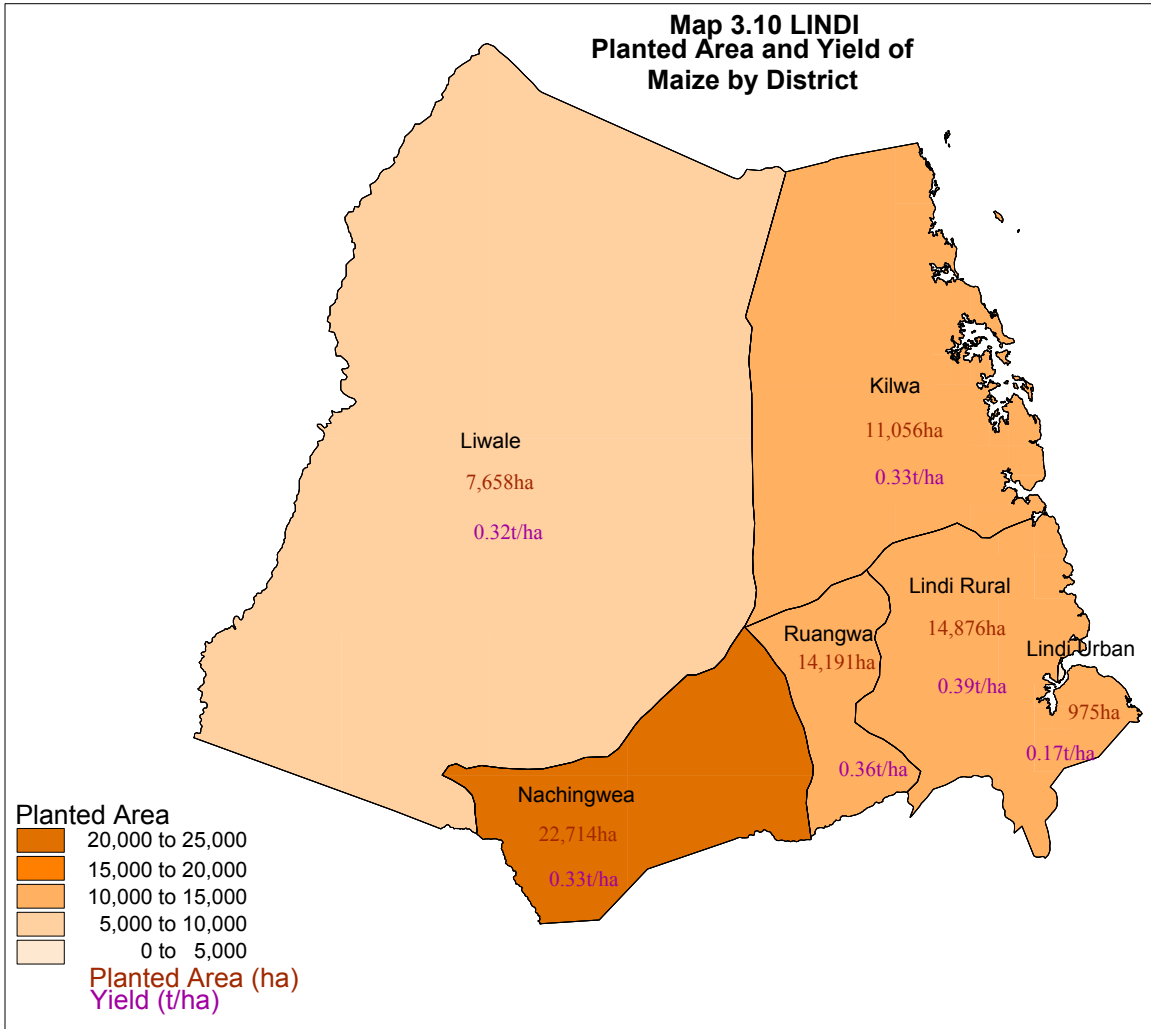


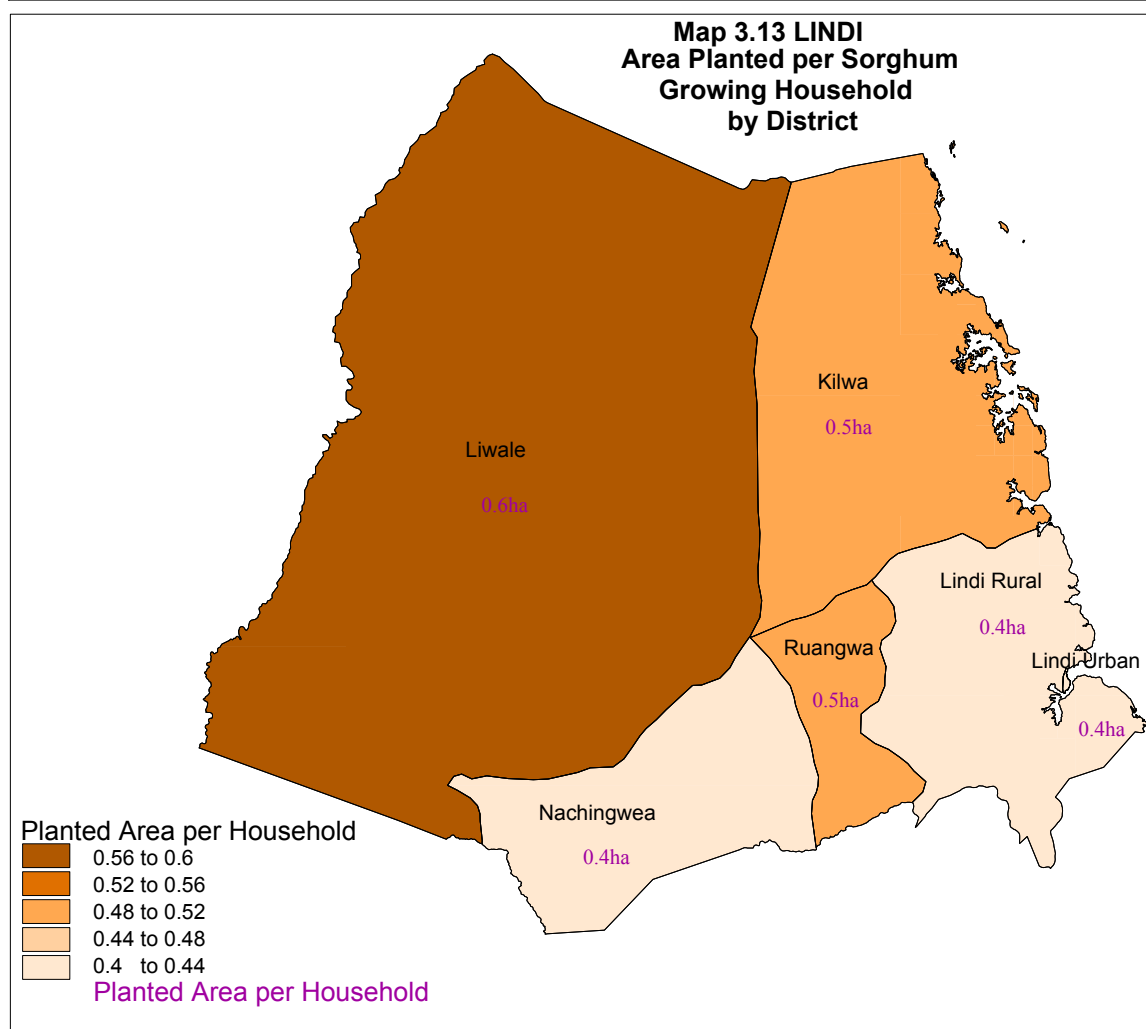
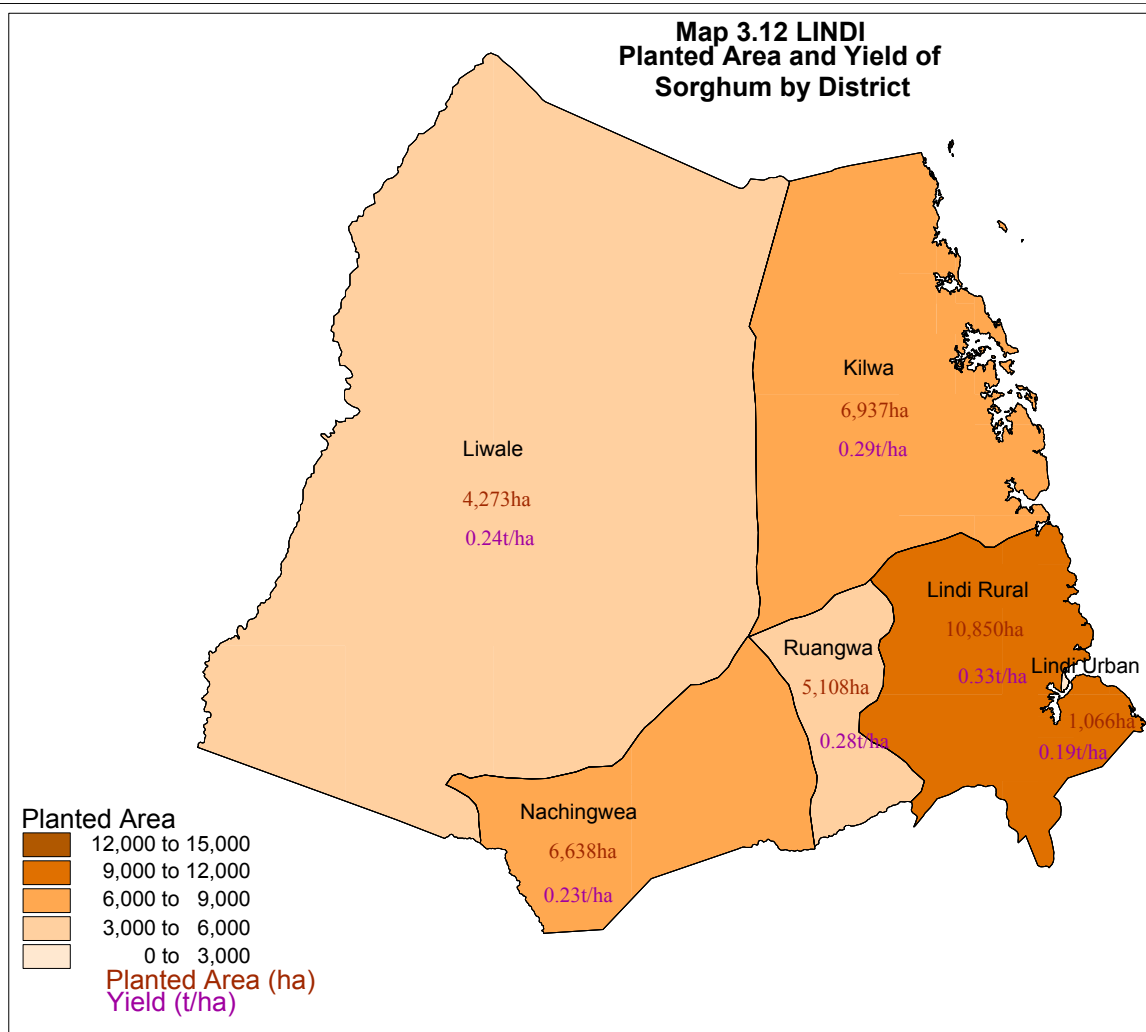
Agricultural households in Nachingwea district had the highest percentage (46.9%) of population aged 5 years and above who had completed different levels of education. This was followed by Liwale (41.6%), Ruangwa (41.0%), Lindi Rural (38.6%), Lindi Urban (38.1%) and Kilwa (34.5%). (Chart 3.7)

The number of heads of agricultural households with formal education in Lindi region was 95,471 (62.3%), those without formal education were 57,702 (37.6%) and those with only adult education were 4,660 (3.0%). The majority of heads of agricultural households (60.3%) had primary level education whereas only 2.0 percent had post primary education.



With regard to the heads of agricultural households with primary education in Lindi region, Nachingwea district had the highest percent (72%). This was followed by Liwale 66%, Ruangwa (61%), Kilwa (57%), and Lindi Urban (43%). The percent of household heads with secondary education was highest in Liwale district (3.2%) and lowest in Kilwa (1.1%). District where some household heads had post secondary education were Kilwa only (0.5%) and Lindi Urban (2.3%). (Chart 3.8)





• **Maize**

Maize dominated the production of cereal crops in the region. The number of households growing maize in Lindi region during the long rainy season was 128,506, (85% of the total crop growing households in the region during the long rainy season). The total production of maize was 24,854 tonnes from a planted area of 71,470 hectares resulting in a yield of 0.35 t/ha.

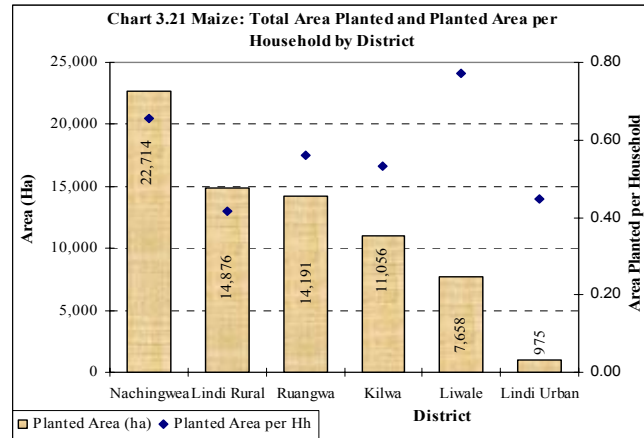
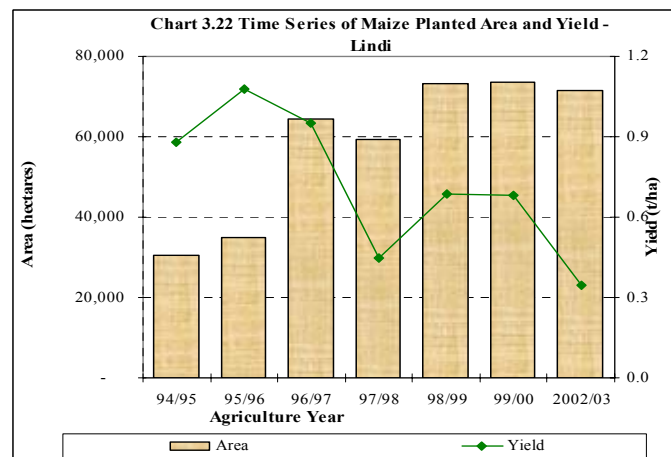
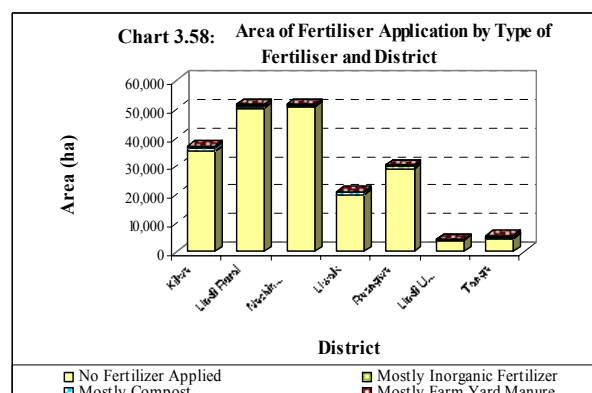
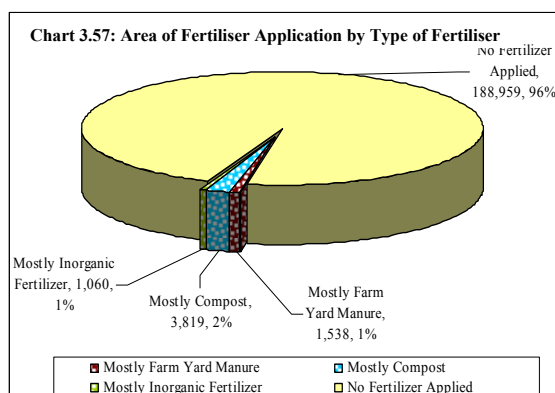


Chart 3.20 indicates maize production trend (in thousand metric tonnes). There was a sharp increase in maize production in 1996. Maize production remained the same over the period two year from 1998 to 1999 after which the production declined over the remaining period up to until 2003. The average area planted with maize per household was 0.56 hectares; however it ranged from 0.42 hectares in Lindi Rural district to 0.77 hectares in Liwale district. Nachingwea district had the largest area of maize (22,714 ha) followed by Lindi Rural (14,816 ha), Ruangwa (14,191 ha), Kilwa (11,056 ha), Liwale (7,658 ha) and Lindi Urban (975 ha)



Charts 3.20 and 3.22 show that, whilst the yield of maize has dropped over the previous 8 years, the quantity produced increased and this has been due to a large increase in the area under production. The area planted with maize remained increased over the period from 1994/95 to 1998/99 after which it remained constant up to the year 2002/03. Overall the yield of maize declined over the period 1995/96 up to the year 2002/03 from 1.1t/ha in 1995 to 0.3 t/ha in 2003 (Chart 3.22).

3.3.4.4 Fertilizer Use



The use of fertilisers on annual crops was very small only on a planted area of 6,312 ha (3.2% of the total area planted with annual crops in the region). The area planted without fertiliser use for annual crops was 189,063 hectares representing 96.8 percent of the total area planted with annual crops. Of the planted area with fertiliser application, compost was applied to 3,325 ha which represented 2 percent of the total area planted with annual crops. This was followed by farm yard manure, applied to 1,538 ha which represents 0.8 percent. Inorganic fertilizers were used on a very small area and represented only 0.5 percent of the area planted with fertilizers.

Table 3.8 Planted Area by Type of Fertilizer Use and District in Wet (Masika) Season

District	Fertilizer Use				No Fertilizers Applied
	Mostly Farm Yard Manure	Mostly Compost	Mostly Inorganic Fertilizers	Total	
Kilwa	667	1,259	39	1,965	34,964
Lindi Rural	226	942	156	1,324	50,220
Nachingwea	195	478	0	673	50,728
Liwale	46	880	99	1,024	19,852
Ruangwa	233	258	766	1,258	29,066
Lindi Urban	173	0	0	173	4,129
Total	1,538	3,819	1,060	6,416	188,959

The highest percentage of the area planted with fertilizer (all types) was in Kilwa district (31%), followed by Lindi Rural (21%), Ruangwa (20%), Liwale (16%), Nachingwea (10%) and Lindi Urban (3%). There were no area planted with organic fertilizers in Nachingwea and Lindi Urban Districts. (Table 3.9, Charts 3.57 and Chart 3.58)

Table 3.9 Number of Crop Growing Households and Planted Area by Type of Fertilizer Use and District

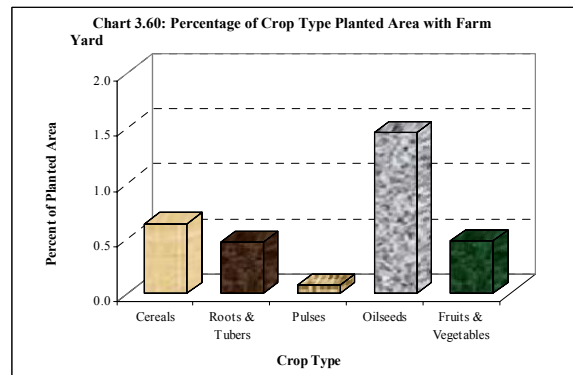
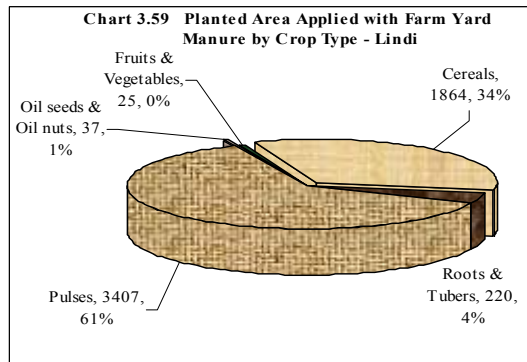
Most annual crop growing households did not use any fertiliser (approximately 189,063 households, 96.8%).

District	Fertilizer Use									
	Mostly Farm Yard Manure		Mostly Compost		Mostly Inorganic Fertilizer		No Fertilizer Applied		Total	
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area
Kilwa	384	667	1,025	1,259	75	39	28,312	34,964	29,796	36,929
Lindi Rural	199	226	509	942	192	156	43,852	50,220	44,753	51,544
Nachingwea	175	195	519	478	0	0	34,473	50,728	35,167	51,402
Liwale	57	46	396	880	83	99	10,665	19,852	11,201	20,876
Ruangwa	131	233	330	258	405	766	26,288	29,066	27,154	30,324
Lindi Urban	168	173	0	0	0	0	2,985	4,129	3,153	4,301
Total	1,114	1,538	2,779	3,819	756	1,060	146,576	188,959	151,224	195,375

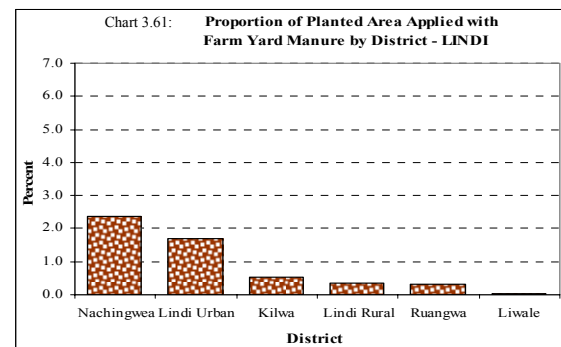
The percentage of planted area applied fertilizers was highest in Nachingwea and Lindi Rural district. There was no inorganic fertilizer and compost manure application in planted areas in Lindi Urban district. (Table 3.10)

• **Farm Yard Manure Use**

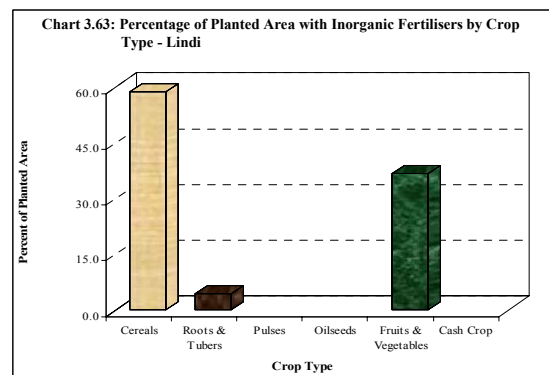
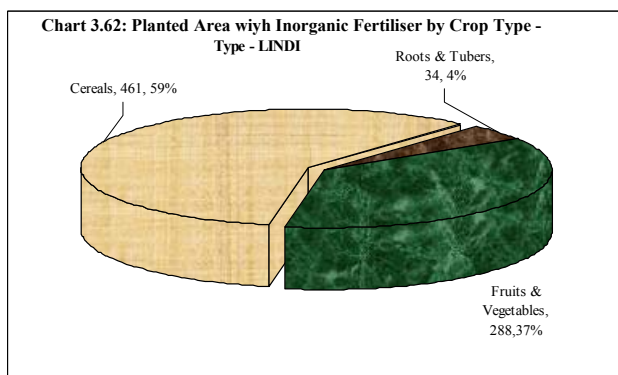
The total planted area applied with farm yard manure in Lindi region was 2,204 ha, representing 1.13 percent of the total area planted with annual crops during the wet season. The number of households that applied farm yard manure in their annual crops during the wet season was 1,914 (Table 3.10). Pulses had the highest percent of the total area planted with



applied farm yard manure (61%), followed by cereals (34%), roots and tubers (4%), oil and oil seeds (1%) and in fruit and vegetables the use of farm yard manure was very small. (Chart 3.59)

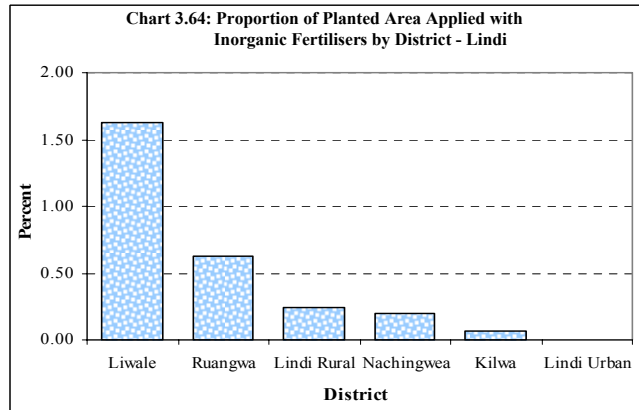


Farm yard manure was mostly used in Kilwa (43% of the total planted area in the district), followed by Lindi Rural and Ruangwa (15%), Nachingwea (13%), Lindi Urban (11%) and Liwale (3%) (Chart 3.61)



• **Inorganic Fertiliser Use**

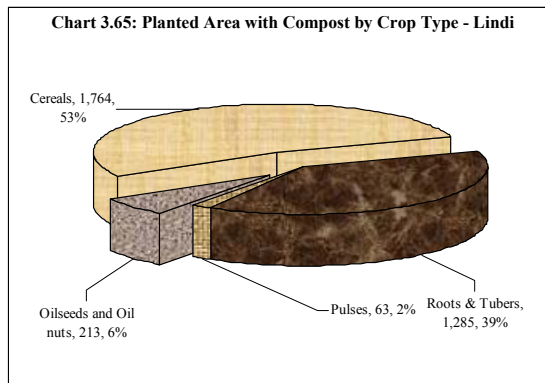
The total planted area applied with inorganic fertilisers in Lindi region was 783 ha which represents 0.40 percent of the total area planted with annuals in the region and 12.4 percent of the total area applied with fertilisers. The number of households that applied inorganic fertilizers on their annual crops during the wet season was 6,820 (Table 3.10). The largest area applied with inorganic fertilizers was for cereals (59% of the total area applied with inorganic fertilizers), followed by fruit and vegetables (37%) and roots and tubers (4%). (Chart 3.62) However, the proportion of fruit and vegetables with inorganic fertilizers was 28.9 percent higher than other crop types, followed by cereals (0.4%) and roots and tubers (0.1%). Inorganic fertilizers were not applied in pulses, cash crops, oil seeds and nut (Chart 3.63).



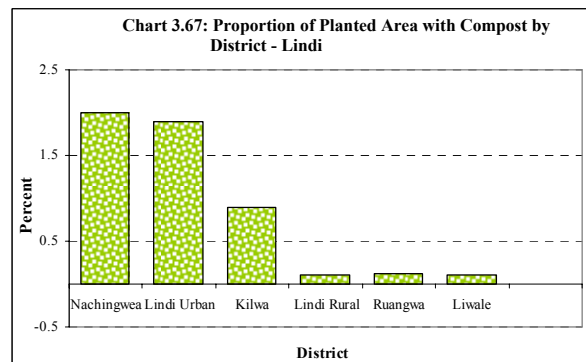
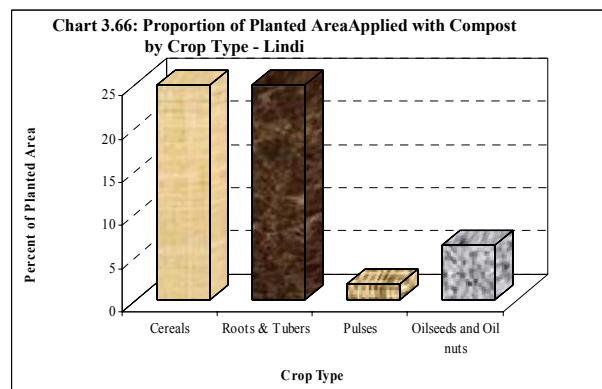
Inorganic fertilisers were mostly used in Liwale (1.63% of the total planted area in the district), followed by Ruangwa (0.63%), Lindi Rural district (0.25%), Nachingwea (0.20%) and Kilwa (0.06%). Lindi Urban district not use any inorganic fertilisers (Chart 3.64).

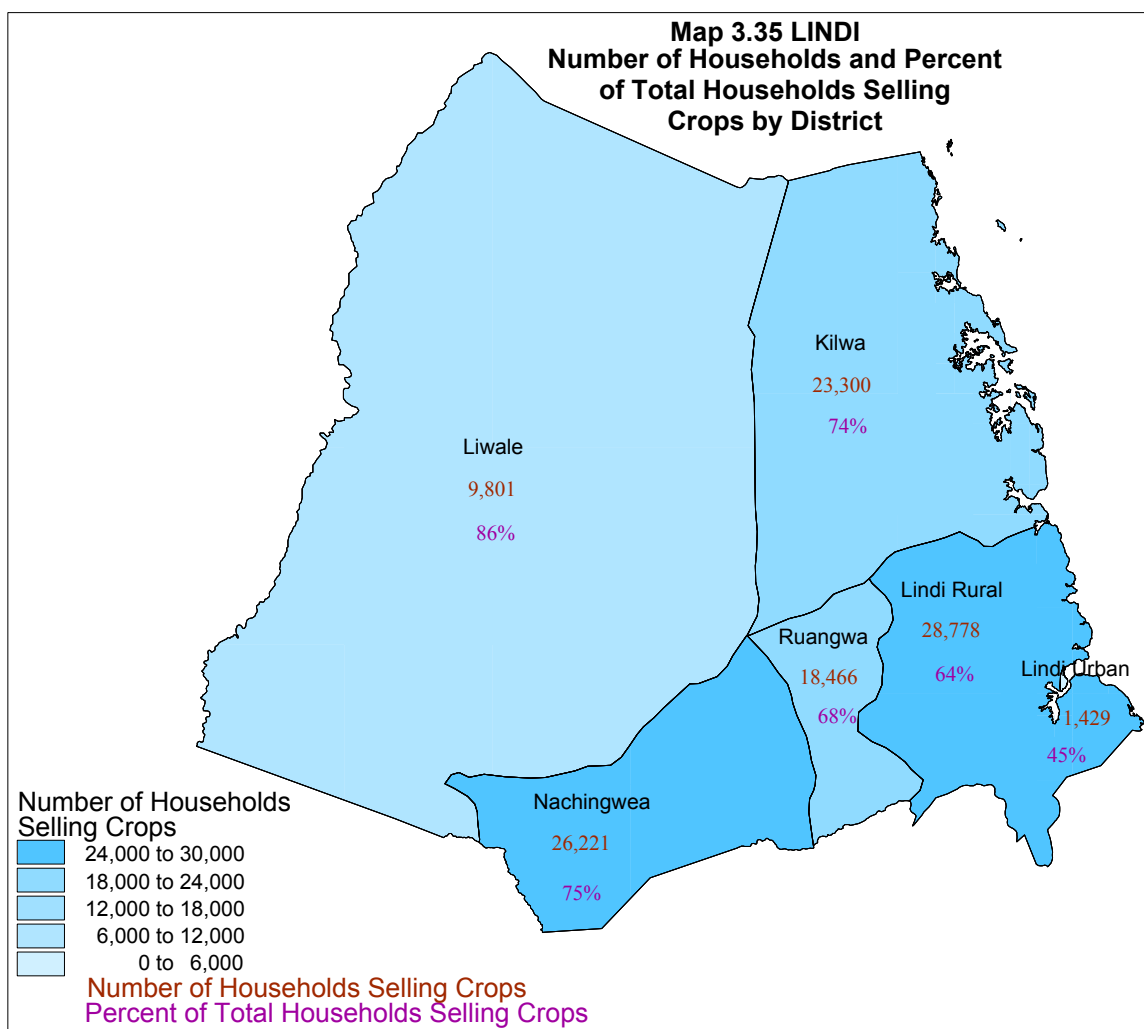
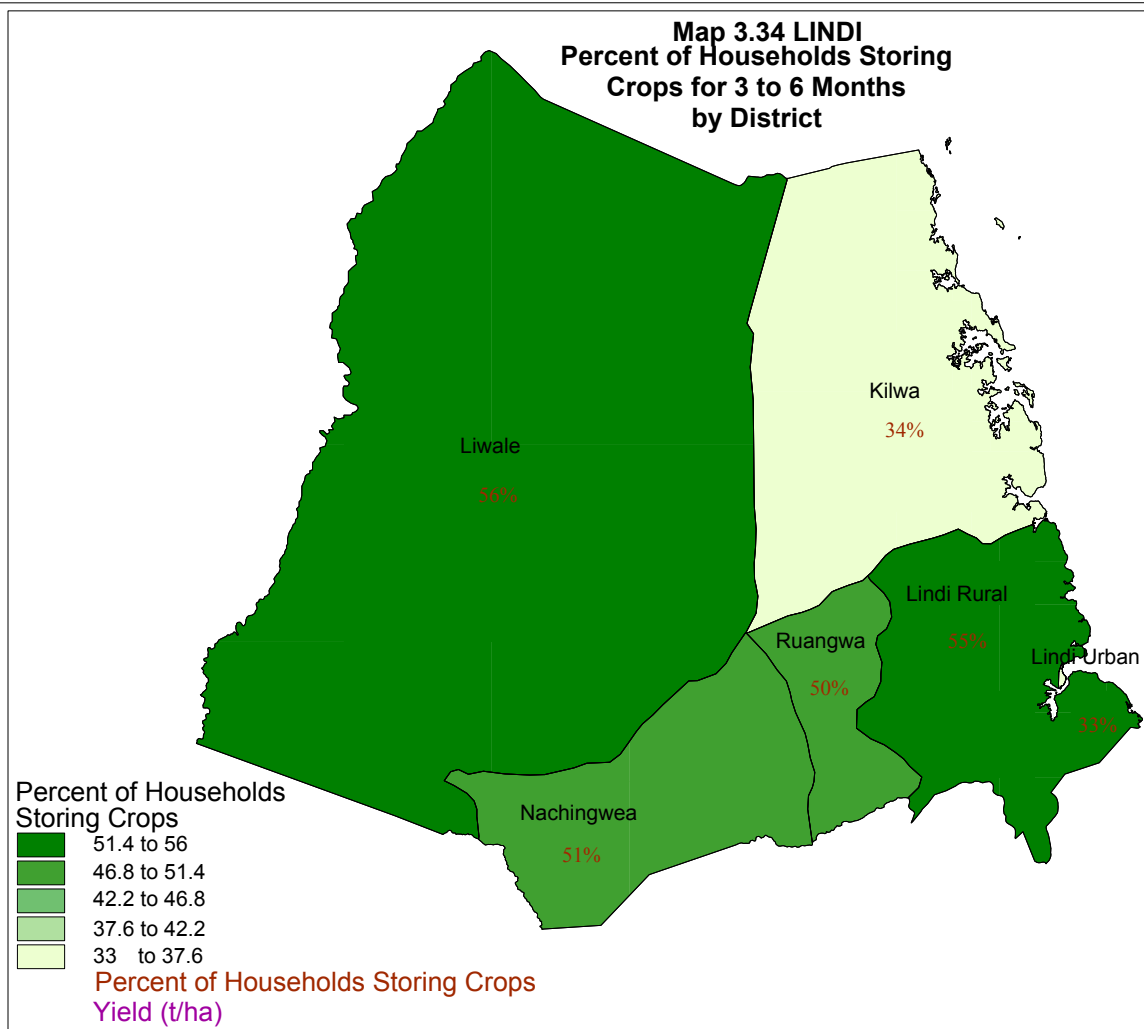
In permanent crops inorganic fertilisers were mainly used in pigeon peas (463 ha).

• **Compost Use**



The total planted area applied with compost was 3,325 ha which represented only 1.7 percent of the total area planted with annual crops in the region and 52.7 percent of the total planted area applied with fertiliser in the region. The number of households that applied compost manure on their annual crops during the wet season was 3,092 (Table 3.10 and Chart 3.65). The proportion of area applied with compost was very low for each type of crop (0 to 4%); however the distribution of the total area using compost manure shows that 55 percent of this area was cultivated with cereals, followed by roots & tubers (39%), oil seeds and nuts (6%), and pulses (2 (Chart 3.66).





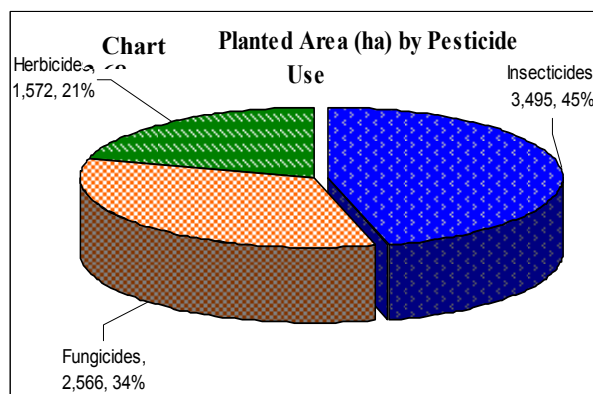
Compost was mostly used in Nachingwea (2% of the total planted area in the district), and this was closely followed by Lindi Urban (1.9%) and Kilwa (0.9%). Other districts, Liwale, Lindi Rural and Ruangwa used very little compost (0.1%) each (Chart 3.67).

In permanent crops compost was mainly used on pigeon pea (751 ha, 77%) followed by rubber vine fruit (104 ha, 11%), banana and guava (45 ha, 5% each), mango (23 ha, 2%) and durian (12 ha, 1%).

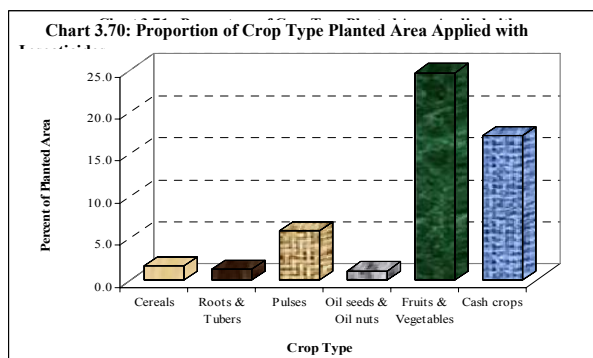
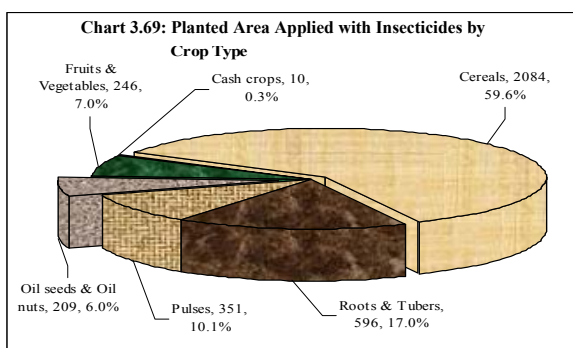
3.3.4.5 Pesticide Use

Pesticides are chemicals used for controlling insects, diseases and weeds. This section analyses the use of these chemicals by smallholders on both annual and permanent crops in the region. Pesticides were applied to a planted area of 7,548 ha of annual crops and vegetables.

Insecticides were the most common pesticide used in the region (46% of the total area applied with pesticides). This was followed by fungicides (33%) and herbicides (21%). (Chart 3.68)

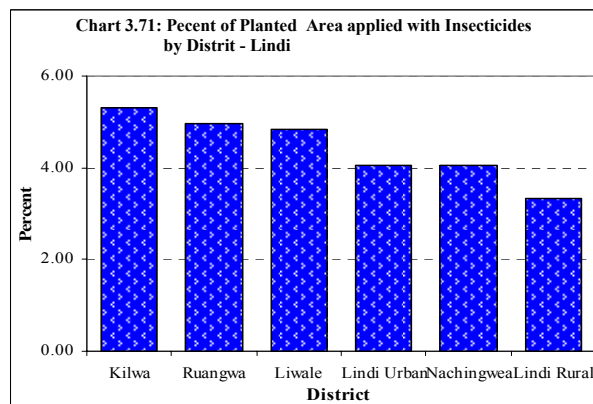


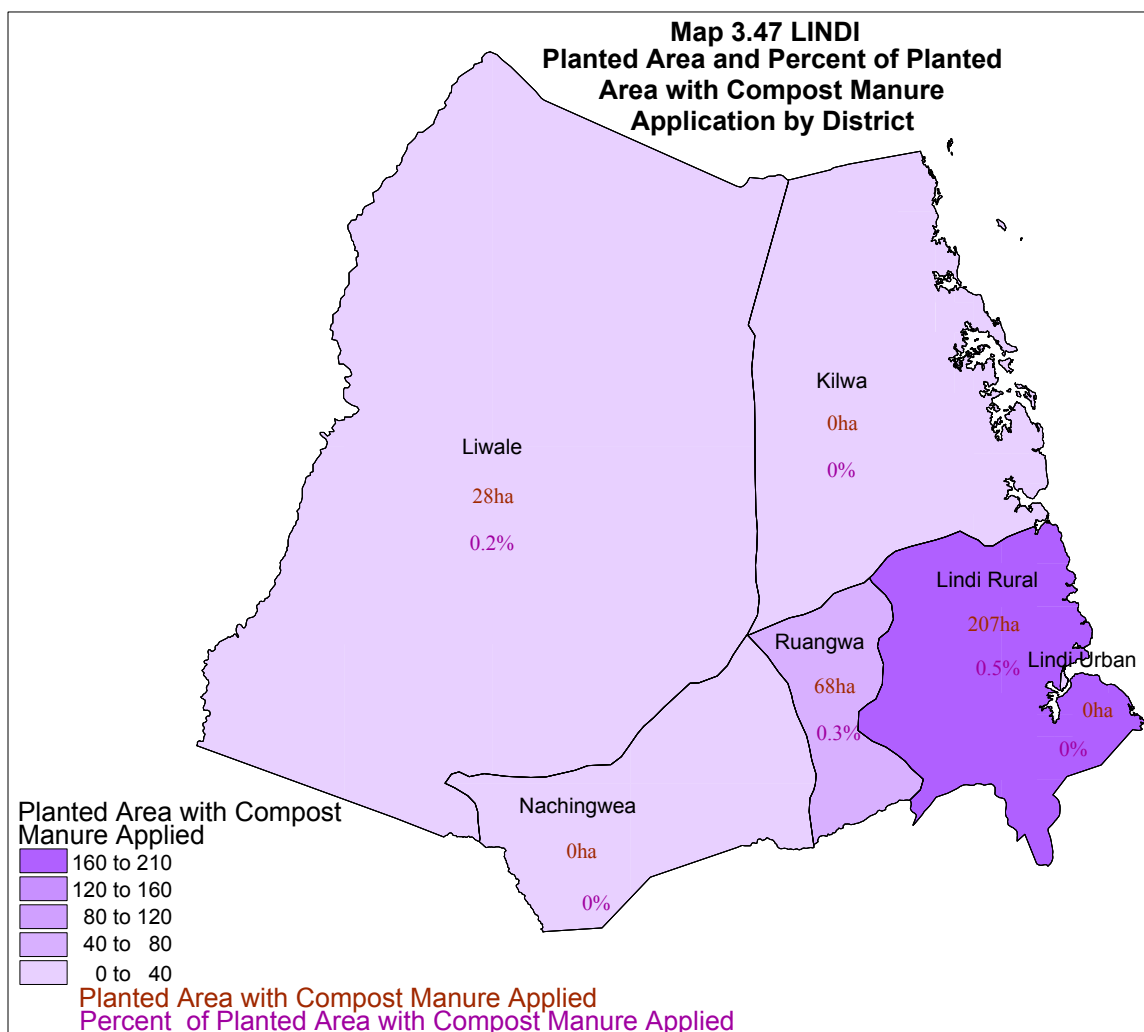
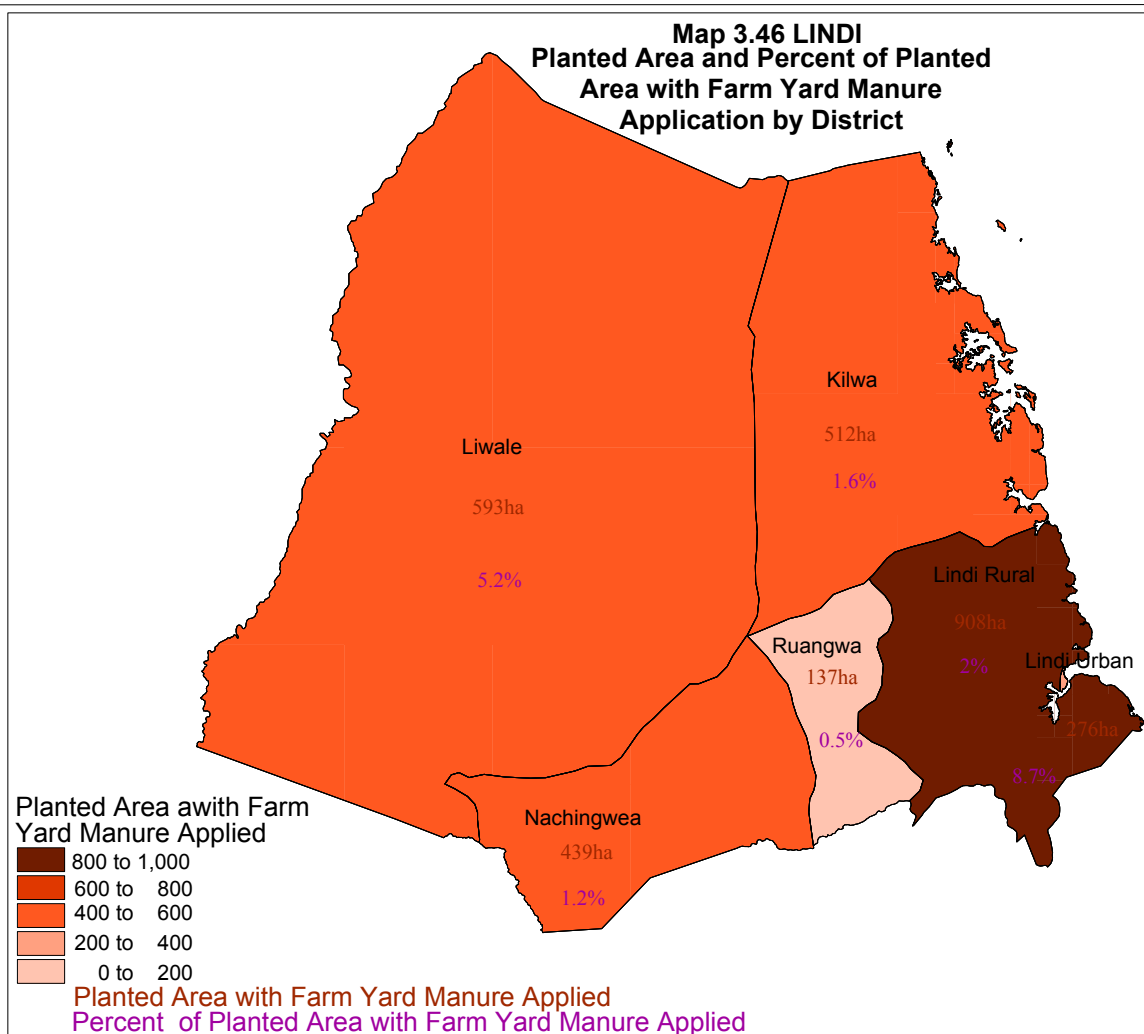
- Insecticide Use**

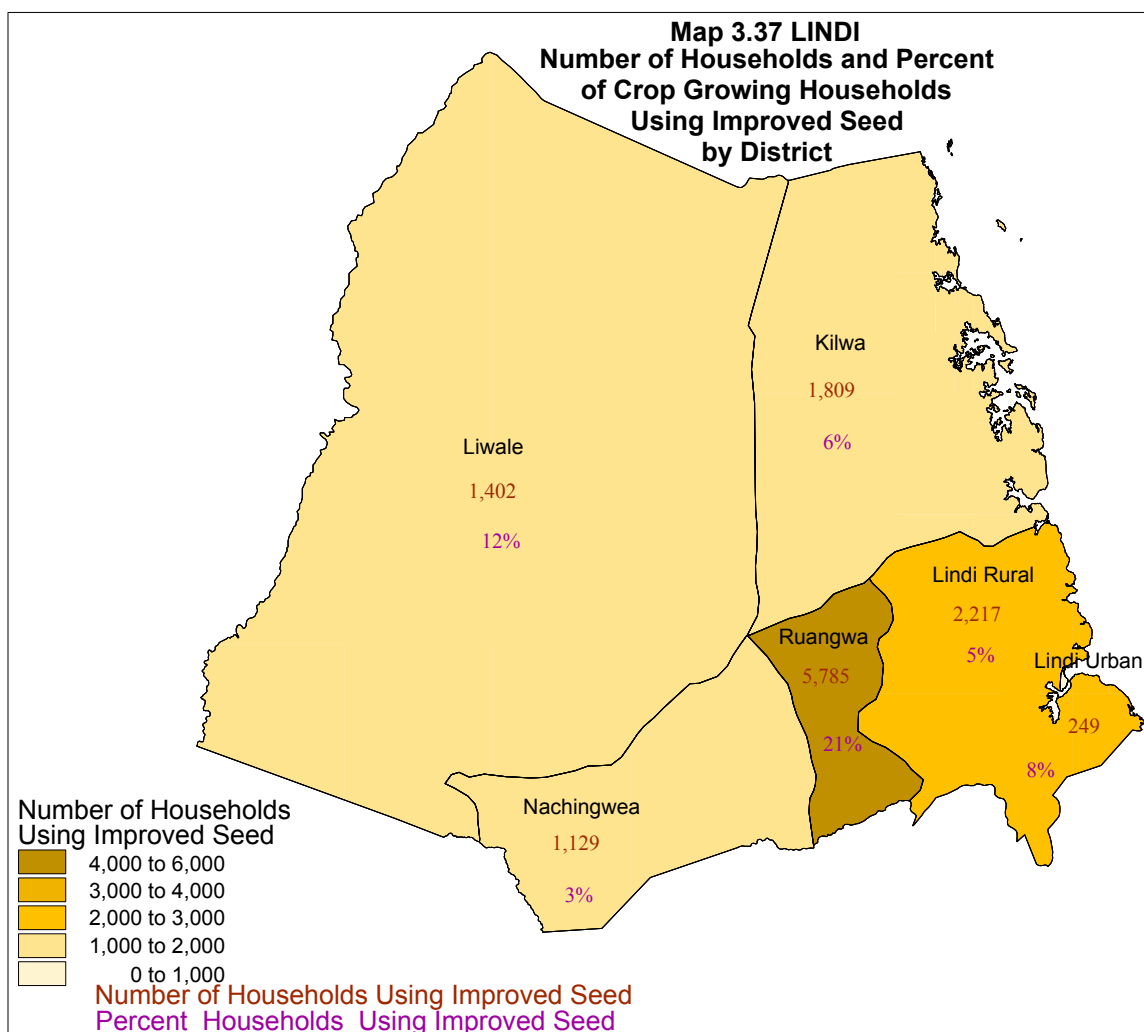
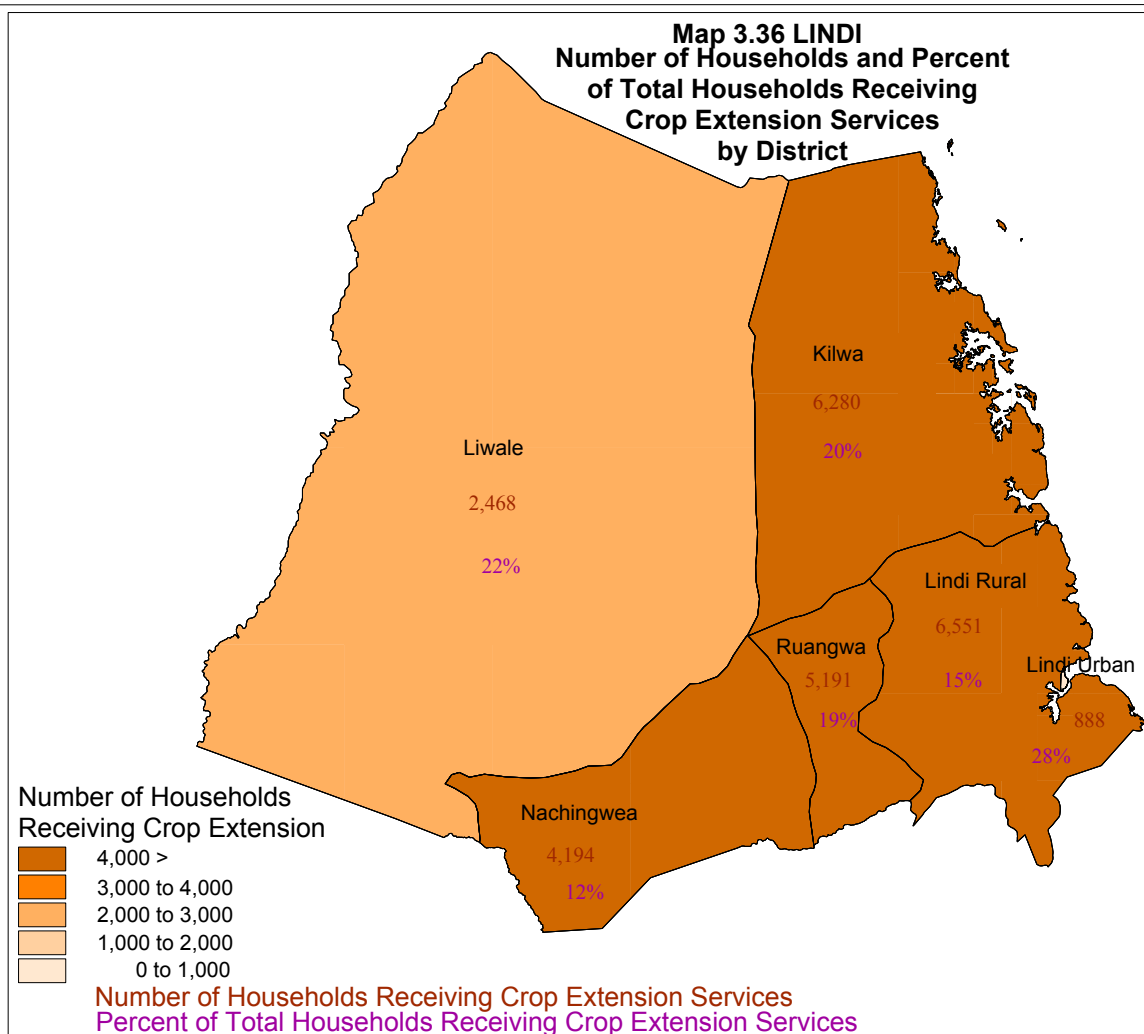


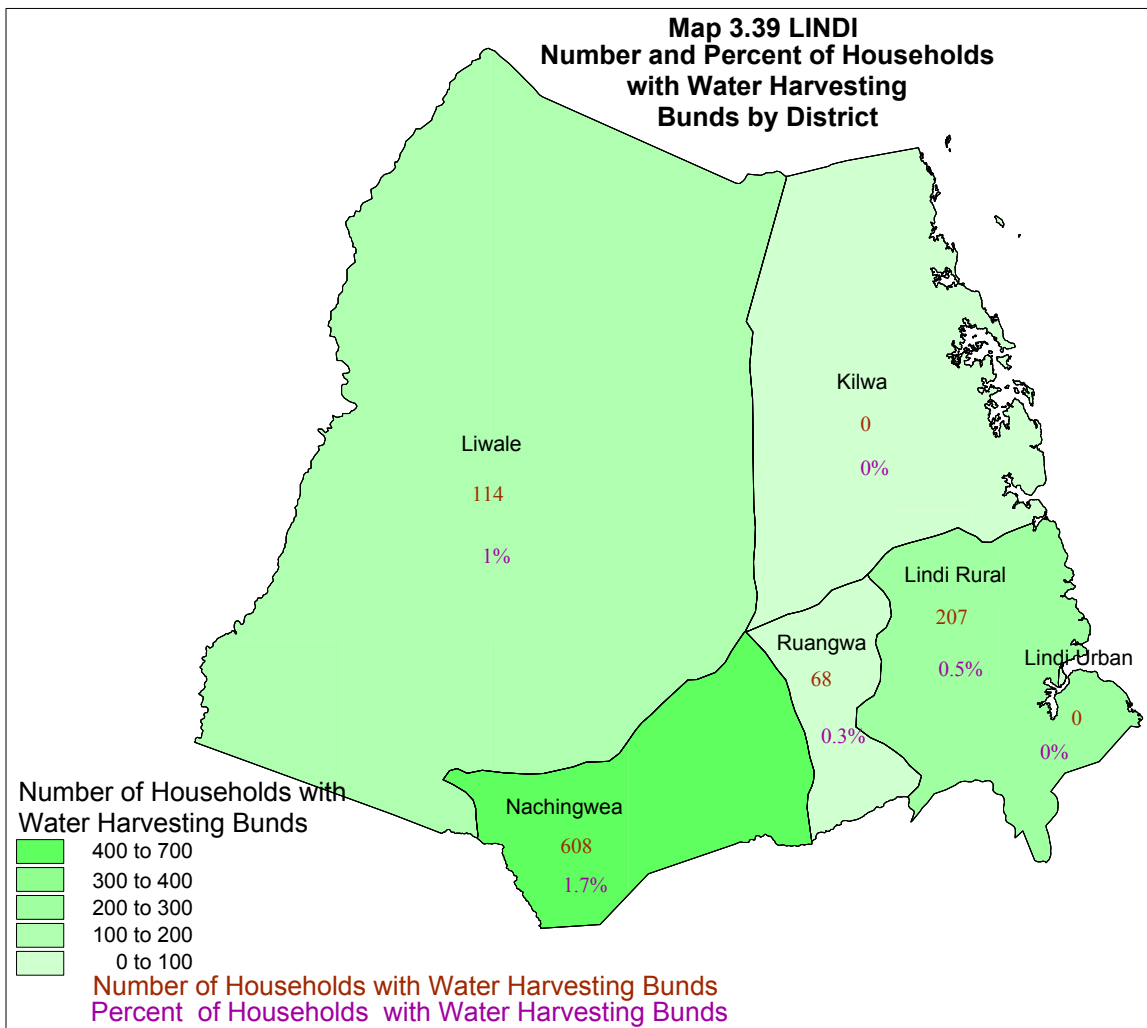
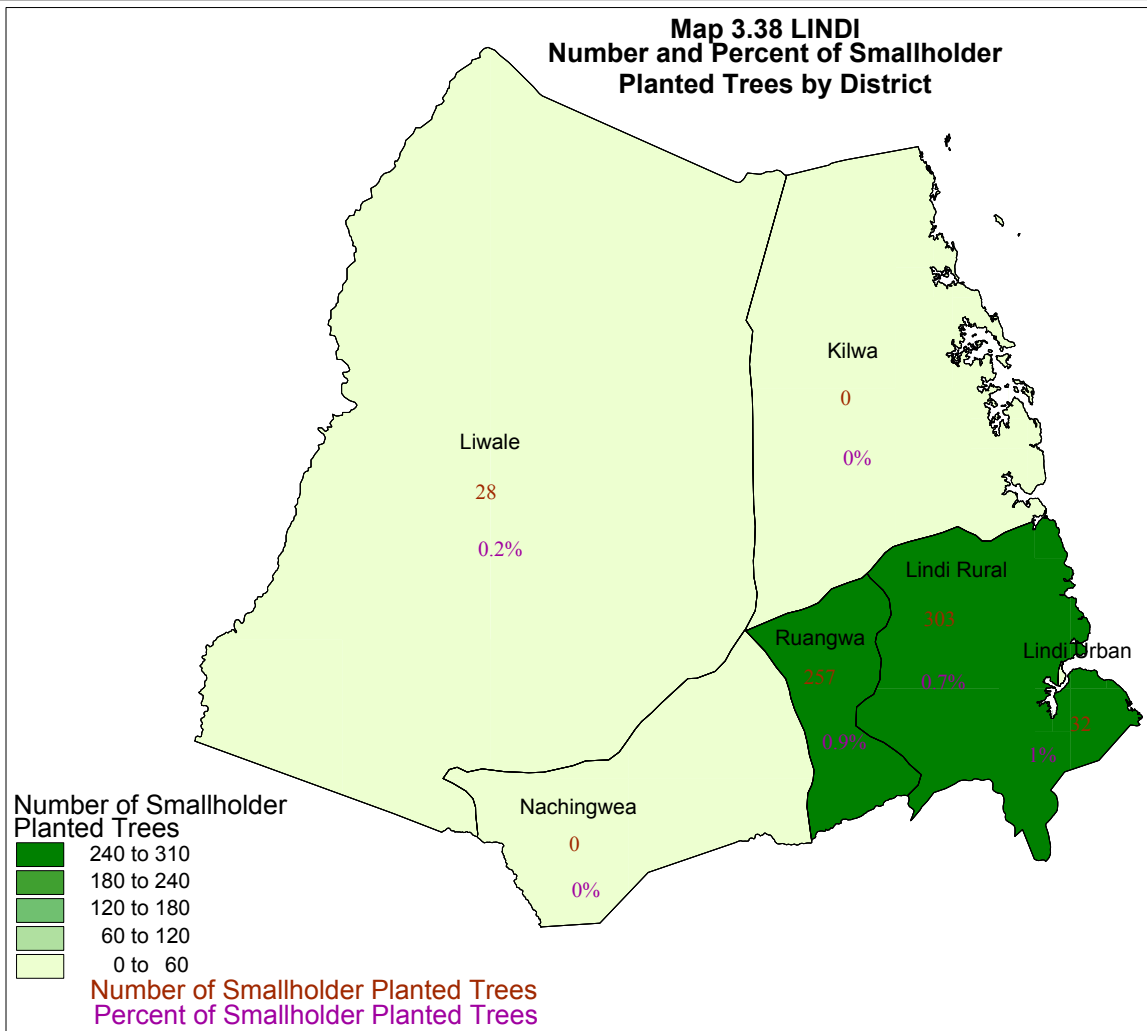
The planted area applied with insecticides was estimated at 3,495 ha which represented 2 percent of the total area planted with annual crops and vegetables.

Cereals had the largest planted area applied with insecticides (2,084 ha, 59.6% of the total planted area with insecticides) followed by roots and tubers (596 ha, 17%), pulses (351 ha, 10.1%), and oil seed (209 ha, 6%), fruit and vegetables (246 ha, 7%) and cash crops (10 ha, 0.3%). (Chart 3.69) However, the percent of insecticides used in fruits and vegetables and cash crops was much greater than in other crop types (24.7 and 17.2% respectively), while only 1.1 percent of oil seed crops were applied with insecticides (Chart 3.70).

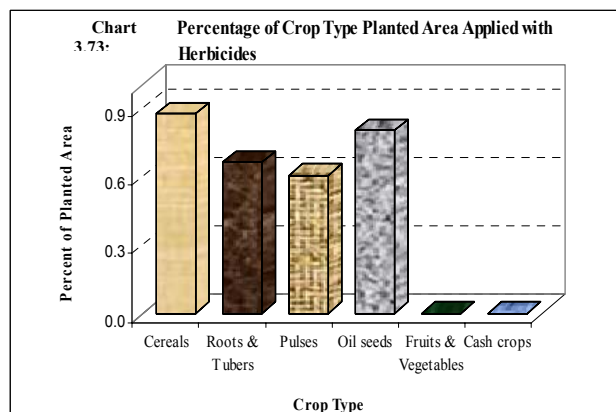
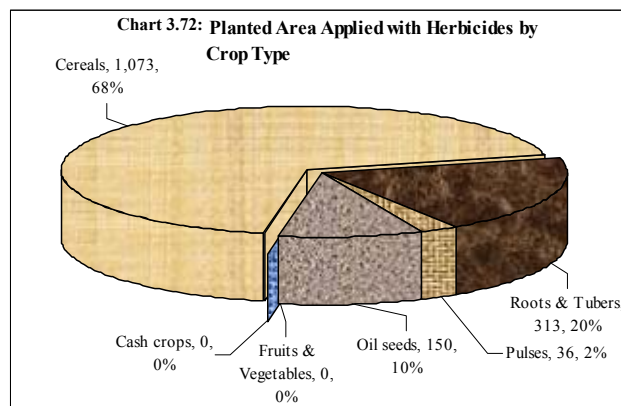








Annual crops with more than 50 percent insecticide use were field peas (80%), jute (70%) and tomatoes (61%). Kilwa had the highest percent of planted area with insecticides (5.3% of the total planted area with annual crops in the district). This was closely followed by Ruangwa (5.0%) then Liwale (4.8%), Lindi Urban (4.1%) and Nachingwea (4.1%). The smallest percentage was recorded in Lindi Rural district (3.3%) (Chart 3.71)



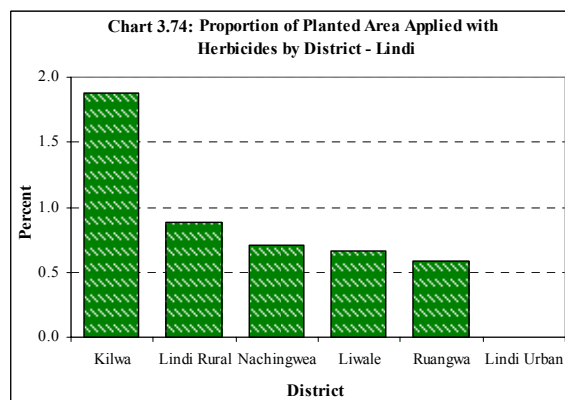
• **Herbicide Use**

The planted area applied with herbicides was 1,572 ha which represented 0.8 percent of the total area planted with annual crops and vegetables. Cereals had the largest planted area applied with herbicides (1,073 ha, 68%) followed by roots and tuber (313 ha, 20%), oil seeds (150 ha, 10%) pulses (36 ha, 2%). Herbicides were not used in cash crops or fruits and vegetables (Chart 3.72).

However, the percent of herbicide use on cereals and oil seeds was much greater than in other crop types (0.9% and 0.8% respectively) while only 0.6 percent

of pulses were applied with herbicides (Chart 3.74). The top six annual crops with highest percentage use of herbicides in terms of planted area were maize (1.0%), sorghum (0.9%), cassava (0.7%), simsim (0.8%), groundnuts (1.0%) and cowpeas (0.7%)

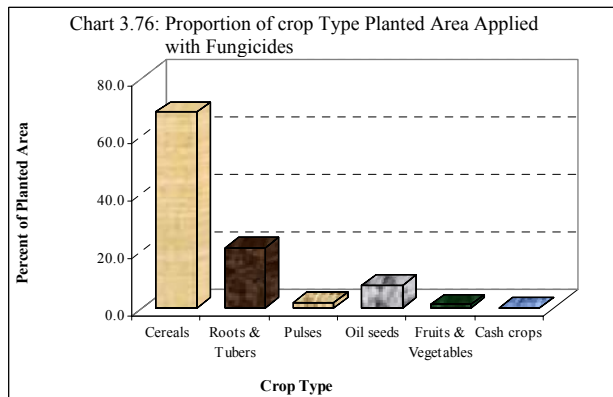
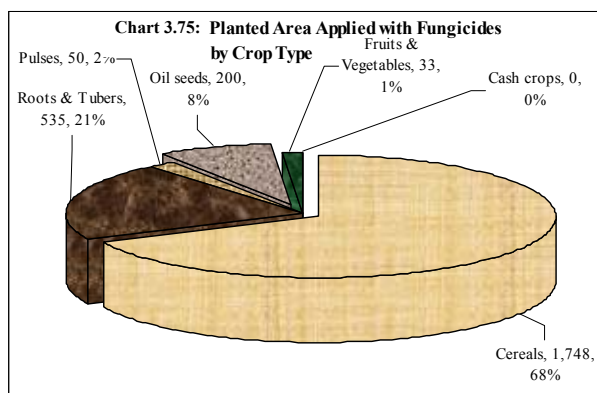
Kilwa had the highest percent of planted area with herbicides (1.9% of the total planted area with annual crops in the district). This was followed by Lindi Rural (0.9%) then Nachingwea (0.7%), Liwale (0.7%) and Ruangwa (0.6%). The use of herbicides in Lindi Urban district was zero (Chart 3.74).



• **Fungicides Use**

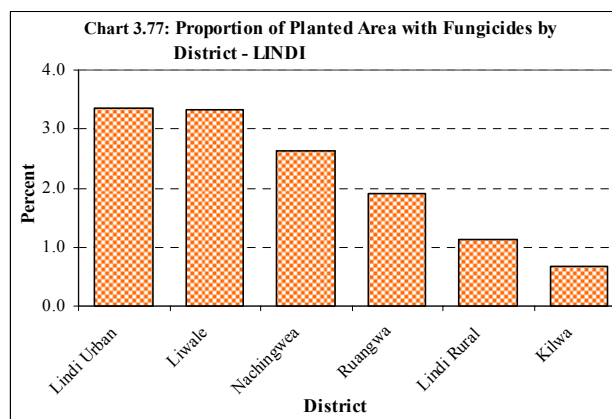
The planted area applied with fungicides was 2,566 ha which represented 1.3 percent of the total area planted with annual crops and vegetables. Cereals had the largest planted area applied with fungicides (1,748ha, 68%) followed by roots and tubers (535 ha, 21%), oil seeds (200 ha, 8%), pulses (50 ha, 2%). Fungicides were not applied in cash crops (Chart 3.75).

However, the percentage use of fungicide in cereals and roots and tubers was much greater than in other crop types (68% and 21% respectively), while only one percent of fruits and vegetables was applied with fungicides (Chart 3.76).



The fungicide use in annual crops was less than 10 percent with tomatoes having the highest use (7%) followed by onions (3.5%), maize (1.7%) and simsim (1.3%)

Lindi Urban and Liwale had the highest percent of planted area with insecticides (3.3 % of the total planted area with annual crops in the district). This was closely followed by Nachingwea (2.6%), Ruangwa (1.9%) and Lindi Rural (1.1%). The smallest percentage use was recorded in Kilwa (0.7%). (Chart 3.77)



3.3.4.6 Harvesting Methods

The main harvesting method for cereals was reported to be by hand. Very small amounts of paddy and cassava were harvested by machine (5%). All other cereals and annual crops were harvested by hand.

3.3.4.7 Threshing Methods

Hand threshing was the most common method used, with 84 percent of the total area planted with cereals during the wet season being threshed by hand. Human powered tools, draft animals and engine driven machines were only used on crops harvested from 0.7%, 0.4 percent and 0.1 percent of the total planted area respectively.

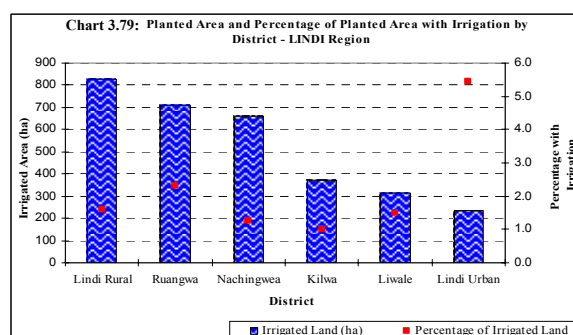
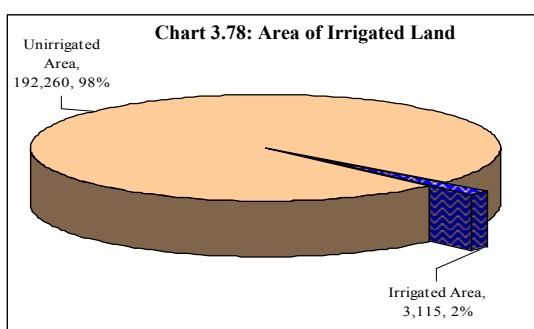
3.3.5 Irrigation

Water is the limiting factor to crop production in the majority of areas in Tanzania and without water most other agricultural practices applied to crops do not result in significant increases in yield. This section deals with the area under irrigation for different crops and the means by which water was extracted from the source and applied to the field.

3.3.5.1 Area Planted with Annual Crops and Under Irrigation

In Lindi region, the area of annual crops under irrigation was 2,806 ha representing 1.4percent of the total area planted (Chart 3.78).

The district with the largest planted area under irrigation for annual crops was Lindi Rural (828 ha, 29.5% of the total irrigated area planted with annual crops in the region).



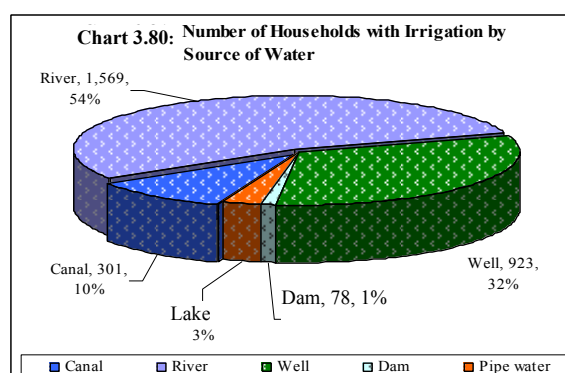
This was closely followed by Ruangwa with (707 ha, 22.7%) and then Nachingwea (660 ha, 21.2%). When expressed as a percentage of the total area planted in each district, Lindi Urban had the highest percent with 5.4% of the planted area in the district under irrigation. This was followed by Ruangwa (2.3%), Lindi Rural (1.6%), Liwale (1.5%), Nachingwea (1.3%) and Kilwa (1%) (Chart 3.79 and map 3.40).

Of all the different crops and in terms of proportion of the irrigated planted area, amaranths and egg plant were the most irrigated crops with 100 percent irrigation followed by okra (71%), onions (70%), tomatoes (29%) and pumpkins (20%).

In terms of crop type, the area under irrigation for cereals was 1,980 ha (64% of the total area under irrigation), followed by roots and tubers with 618 ha (20%), fruit and vegetables (418 ha, 13%), oil and oil seeds (51 ha, 2%) and pulses (48 ha, 2%). All of the irrigation on cereals was applied to maize, paddy and sorghum.

The area of fruit and vegetables under irrigation was 418 ha which represents 42 percent of the total planted area with fruit and vegetables, followed by cereals (1.6%), roots and tubers (1.3%), pulses (0.8%) and oil seeds and oil nuts (0.3%).

3.3.5.2 Sources of Water Used for Irrigation

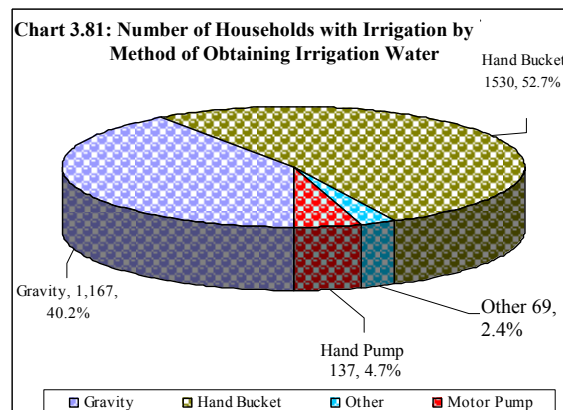


The main source of water used for irrigation was from river (54% of households with irrigation). This was followed by wells (32%), canals (10%), pipe water (3%) and dam (1%). There were no households using water from boreholes. Using various sources of water for irrigation, Lindi rural had 1,235 (43%) households, followed by Ruangwa 680 households (23%), Liwale 426 households (15%), Kilwa 386 households (13%) and Nachingwea 176 households (6%). (Chart 3.80)

3.3.5.3 Methods of Obtaining Water for Irrigation

Gravity was the most common means of getting water for irrigation with 52.7 percent of households using this method. This was closely followed by gravity with 40.2 percent of households. The remaining methods (hand pump, motor pump and others) were of minor importance (Chart 3.81).

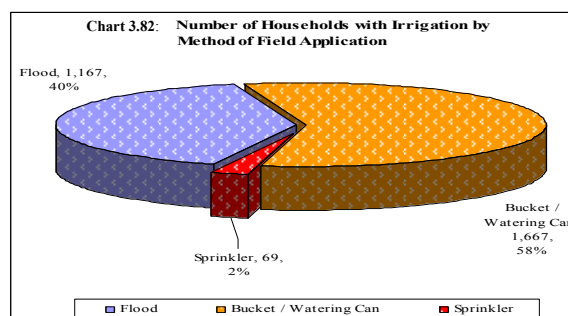
Hand bucket was used by most households with irrigation in Lindi Rural (33%), followed by Ruangwa (31%), Liwale (15%), Nachingwea (11%) and Kilwa (9%). Motor pump was used only in Ruangwa district. Gravity was the second most important method of obtaining water for irrigation. Gravity was more common in Lindi Rural with 62 percent of households using the method to get water for irrigation, followed by Kilwa (21%) and Liwale (17%). Gravity was not used in Nachingwea and Ruangwa districts.



Although the method of obtaining irrigation water by hand bucket was the most common method in all districts, Ruangwa districts used some hand and motor pumps for obtaining water.

3.3.5.4 Methods of Water Application

Most households used watering can (58% of households using irrigation) as a method of field application. This was closely followed by flooding (40%). Sprinklers were not widely used (3%). Water hose were not used at all as a method of water application. (Chart 3.82)



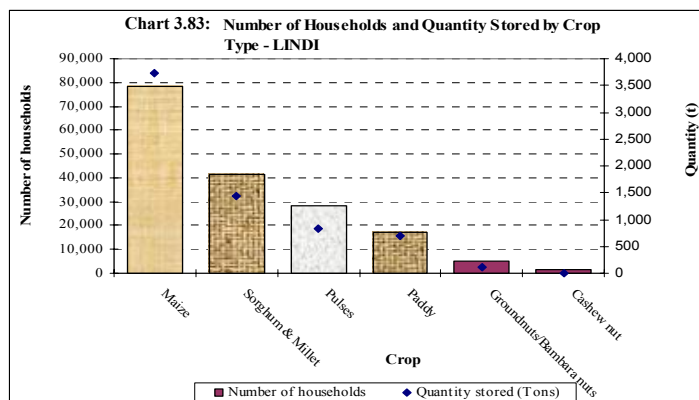
3.3.6 Crop Storage, Processing and Marketing

3.3.6.1 Crop Storage

Crop storage means keeping a crop for a certain period of time as food for the household, in order to sell at higher prices or as seed for planting in the following season.

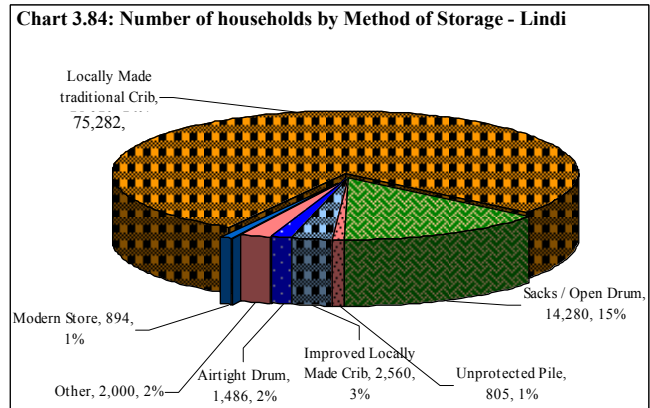
The results for Lindi region show that there were 97,394 crop growing households (64% of the total crop growing households) that stored various agricultural products in the region.

The most important stored crop was maize with 78,537 households storing 3,720 tonnes as of 1st January 2004. This was followed by sorghum and millet (41,507 households, 1,432 tonnes), pulses (28,321 households, 832 tonnes), paddy (17,411 households, 700 tonnes), groundnuts and bambara nuts (4,978 households, 113 tonnes) and cashew nuts (1,576 households, 10 tonnes). Other crops were stored in very small quantities. (Chart 3.83)

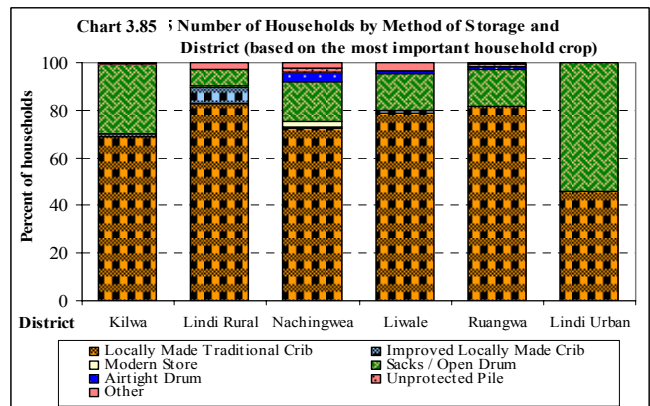


• Methods of Storage

The region had 75,282 crop growing households storing their produce in locally made traditional structures (77% of households that stored crops in the region). The number of households that stored their produce in sacks and/or open drums was 14,280 (15%). This was followed by improved locally made structures (2,560 households, 3%) air tight drums (1,486 households, 1.5%), modern stores (894 households, 0.9%), unprotected piles (805 households, 0.8%) and other methods (2,088 household, 2.1%) (Chart 3.84)



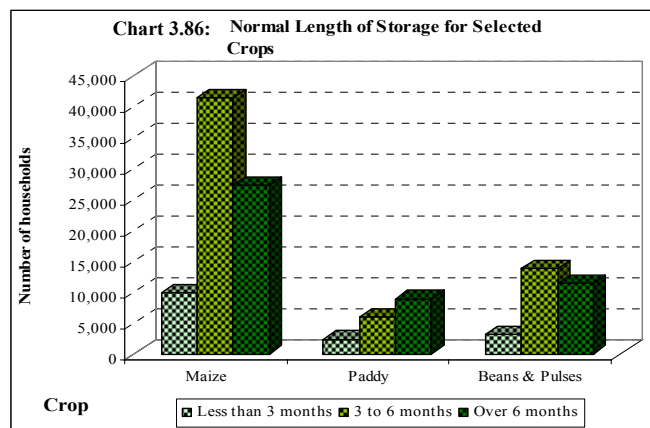
Locally made traditional structures was the dominant storage method in all districts, with the highest percent of households in Lindi Rural using this method (83% of the total number of households storing crops). This was followed by Ruangwa (82%), Liwale (79%), Nachingwea (72%), Kilwa (69%) and Lindi Urban (46%) (Chart 3.85)



The highest percent of households using sacks and open drum was that of Lindi Urban and Kilwa districts (54% and 29% of the total number of households storing crops), followed by Nachingwea and Liwale (16% each), Ruangwa (15%) and Lindi Rural (7%).

• Duration of Storage

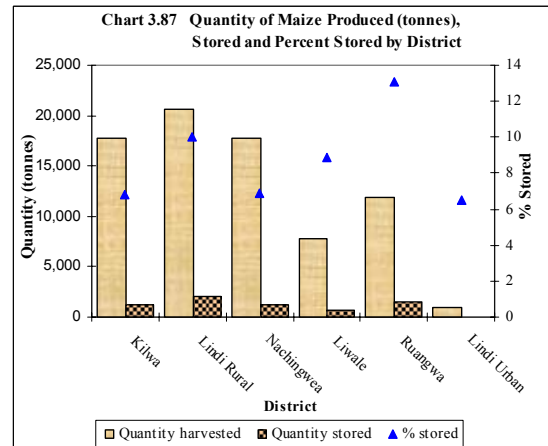
Most households (51% of the households storing crops) stored their produce for a period of 3 to 6 months followed by those who stored for a period of over 6 months (37%). The minority of households stored their crop for a period of over less than 3 months (12%).



Most households that stored pulses stored them for a period of between 3 to 6 months. A small number of households stored pulses for the period of less than 3 months (Chart 3.86).

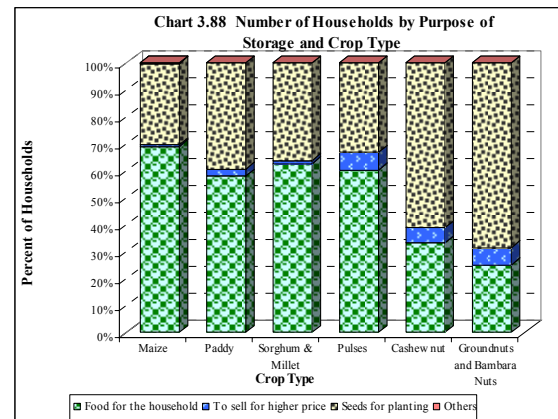
The proportion of households that stored their produce for the duration of 3 to 6 months was highest in Lindi Rural district (72%) followed by Lindi Urban (59%), Liwale (56%), Kilwa and Ruangwa (36%).

District comparison of duration of storage cannot be done for all crops combined. However, the analysis has been done for maize only as it is the most commonly stored crop. In general, quantity stored was related to the quantity produced. Districts with greater production had a higher percent of their crop stored as on 1st October 2003 (Chart 3.87). However, households in Lindi Urban district stored relatively little maize in comparison to the quantity produced indicating that the quantity stored was determined by the food and seed requirement of the household and not to sell during the “off-season” when the farm gate price of maize is higher.



• Purposes of Storage

Subsistence food crops (maize, paddy, sorghum and millet, beans and pulses) are mainly stored for household consumption. The percent of households that stored maize for household consumption as the main purpose of storage was 69 percent followed by seed for planting. Practically all stored annual cash crops were stored for selling at higher price. A high percent of the stored annual cash crops was used for seeds for planting as was the case of groundnuts and bambaranuts (68.5%), followed by cashewnuts (61.2%) (Chart 3.88).



• The Magnitude of Storage Loss

About 68 percent of households that stored crops had little or no loss, followed by 23 percent loss up to a quarter. However the proportion of households that experienced a loss of more than a quarter was higher for food crops than crops that are produced for sale such as coffee, tobacco, cashew nut, groundnut and bambaranuts.

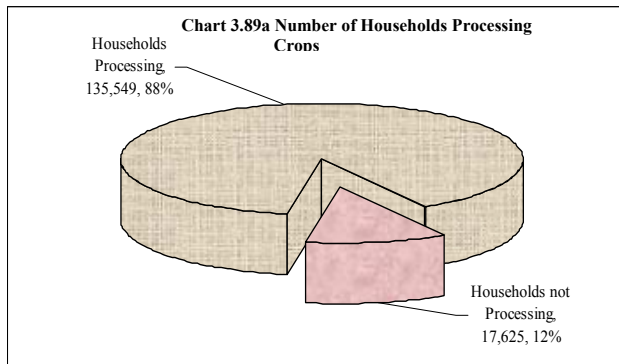
The proportion of households that reported a loss of more than a quarter was greatest for maize (7.1% of the total

number of households that stored crops). This was followed by beans and pulses (4.7%), groundnuts and bambaranut (3.7%), sorghum and millet (3.4%) and paddy (1%). All households that stored cash crops such as cotton and tobacco had no loss. Most households storing groundnuts and bambaranuts had little or no storage loss (92.3%). (Table 3.10)

Table 3.10 : Number of Households Storing Crops By Estimated Storage Loss and District

	Estimate Storage Loss				Total
	Little or no Loss	Up to 1/4 Loss	Between 1/4 and 1/2 Loss	Over 1/2 Loss	
Kilwa	7,602	1,394	538	161	9,694
Lindi Rural	23,970	4,933	920	1,425	31,248
Nachingwea	17,372	10,911	1,923	436	30,642
Liwale	5,809	1,460	395	85	7,749
Ruangwa	10,816	3,892	2,263	403	17,374
Lindi Urban	654	35	0	0	688
Total	66,221	22,624	6,039	2,510	97,395

3.3.6.2 Agro processing and By-products



Agro processing refers to a process that converts a crop product from one form to another form in order to add value or increase its palatability. Agro-processing was practiced in most crop growing households in Lindi region (135,548) households, 89% of the total crop growing households) (Chart 3.89a).

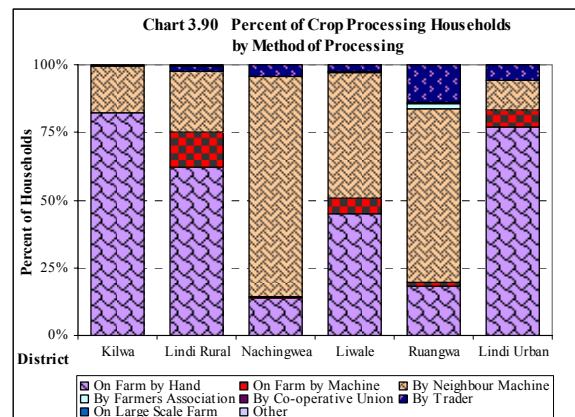
The percent of households processing crops was very high in most districts (above 90%). Nachingwea and Lindi Rural

had the highest percent of households processing crops (97% and 91% of crop growing households respectively)

Processing Methods

Most households processed their crops using neighbour’s machines accounting for 46 percent (62,165 households) of the total crop processing households. This was closely followed by those processing on-farm by hand (59,757 households, 44%), on-farm by machine (6,475 households, 4.8%), trader (6,235 households, 4.6%). The remaining methods of processing crops were used by very few households with each accounting for less than 1% of the total crop growing households.

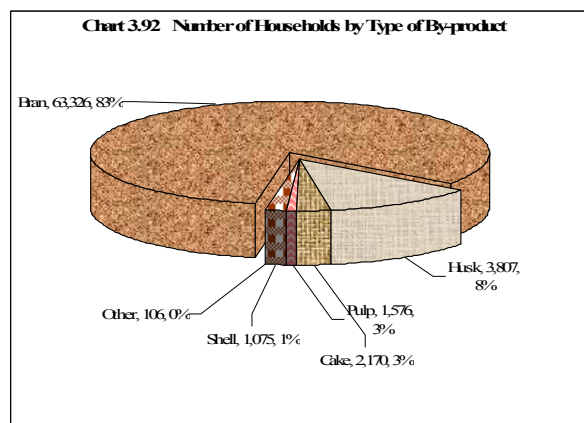
Although processing by machine was the most common processing method in all districts in Lindi region, however district differences existed. Lindi Rural had a higher percent of hand processing than other districts. (43%), followed by Kilwa (31%). Nachingwea and Ruangwa had 8% each and Lindi Urban (3%). Processing by trader was more common in Ruangwa (56%), whilst processing on farm by machine was more prevalent in Lindi Rural (81%), (Chart 3.90).

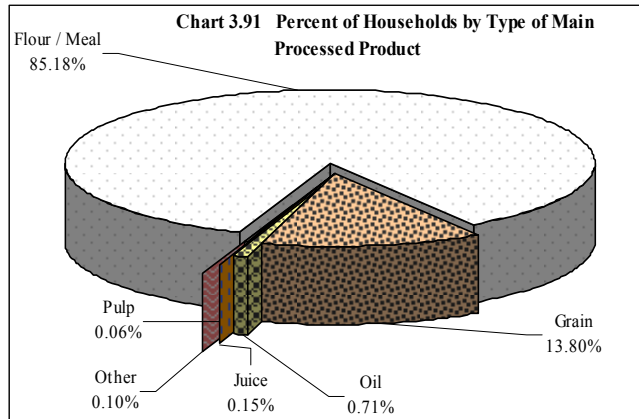


• **Main Agro-processing Products**

Two types of products can be produced from agro-processing namely, the main product and the by-product. The main product is the major product after processing and the by-product is the secondary product after processing. For example the main product after processing maize is normally flour whilst the by-product is normally the bran.

The main processed product was flour/meal with 115,383 households processing crops into flour (85%) followed by grain with 18,694 households (14%). The remaining products were produced by small numbers of households (Chart 3.91).

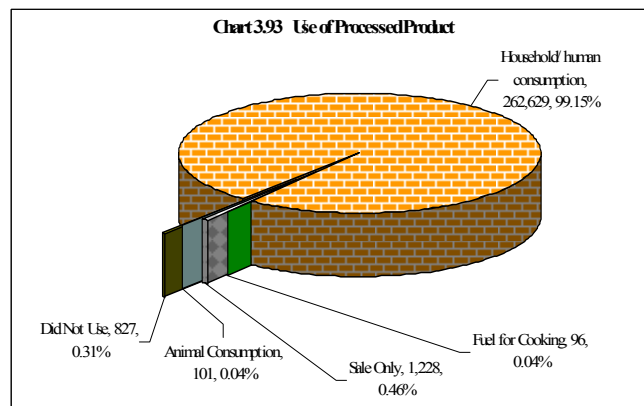




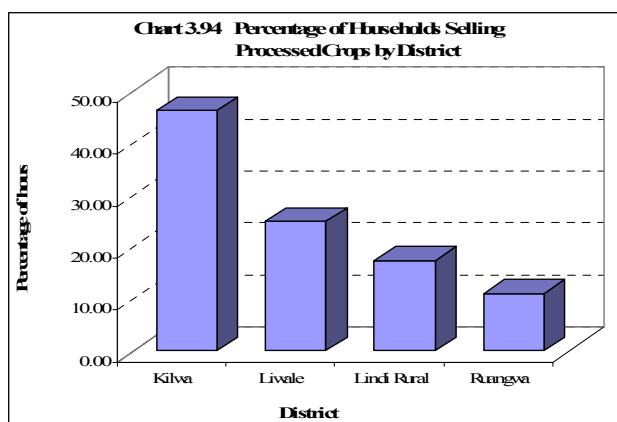
The number of households producing by-products accounted for 34 percent of the households processing crops. The most common by-product produced by crop processing households was bran with 37,186 households (80%) followed by Husks (5,884 households, 13%), shell (1,810 households, 4%) and cake (1,250 households, 3%). The remaining by-products were produced by a small numbers of households (Chart 3.92).

• **Main Use of Primary Processed Products**

Primary processed products were used for households or human consumption, fuel for cooking, for selling and for animal consumption. The most important use was household/human consumption which represented 99.5 percent of the total households that used primary processed product (Chart 3.93). Lindi Rural was the only district that used primary products as fuel for cooking.



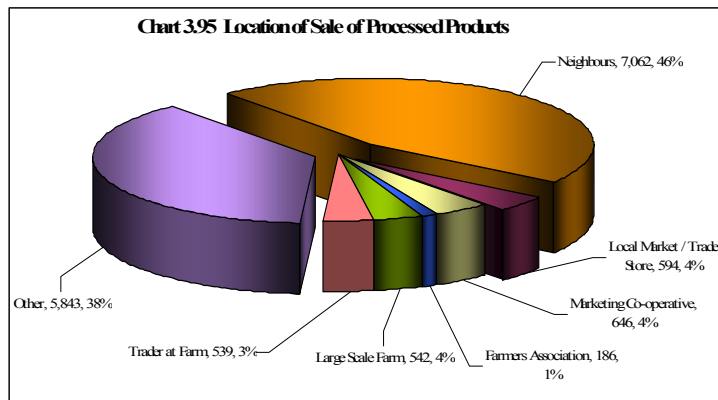
Out of 7,182 households that sold processed products, 570 were from Kilwa (46% of the total number of households selling processed products in the region), followed by Livale with 307 households (25%), Lindi Rural with 214 households (17%) and Ruangwa with 138 households (11%). There were no processed products sold in Nachingwea and Lindi Urban districts (Chart 3.94).



- **Outlets for Sale of Processed Products**

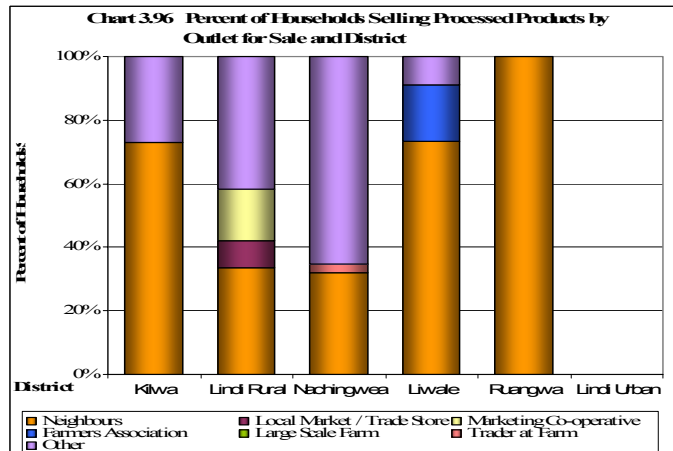
Products

Most households that sold processed products sold to neighbours (3,324 households, 46.3%), followed by to others (3,175 households, 44.2%). This was followed by large scale farm (233 households, 3.2%), cooperatives (201 households, 2.8%), store (106 households, 1.5%), trader at farm (88 households, 1.2%) and farmers association (55 households, 0.8%) (Chart 3.97).



There were large differences between districts in the proportion of households selling processed products to neighbours with Ruangwa district selling all the processed products to neighbours (100%), whereas Lindi Urban did not sell any processed products to neighbours.

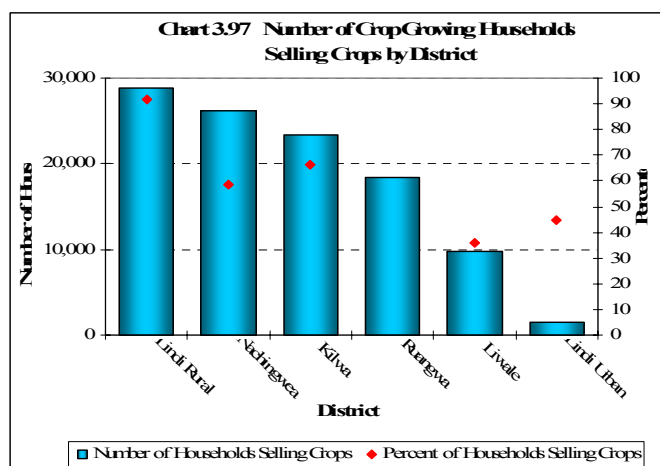
Compared to other districts, Lindi Rural was the only district that sold processed products to local markets/traders (7.3%) and marketing cooperatives (14%). In Liwale, selling processed products to farmer associations (17%) was most prominent compared to other districts. The districts that had the highest proportion of households selling processed products to other marketing outlets were Nachingwea (65.4%), followed by Lindi Rural 35.7%, Kilwa (27%) and Liwale (8.2%). (Chart 3.96)



3.3.6.3 Marketing

- **Crop Marketing**

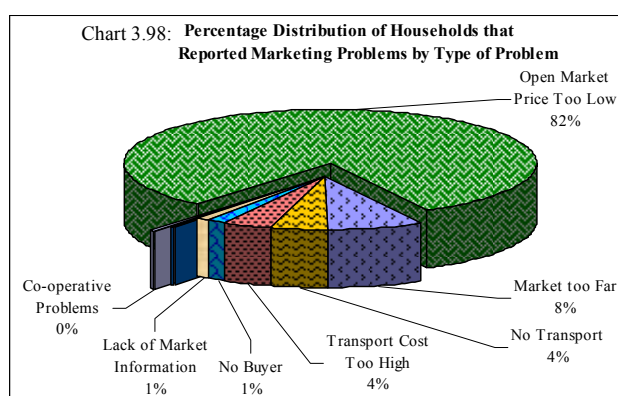
The number of households that reported selling crops was 107,996 which represented 70.6 percent of the total number of crop growing households. The percent of crop growing households selling crops was highest in Lindi Rural (92%), followed by Ruangwa (68%), Kilwa (66%), Nachingwea (58%), Lindi Urban (45%) and Liwale (36%). (Chart 3.97)



- **Main Marketing Problems**

Low price for agricultural produce was the main marketing problem reported by households (82% of crop growing households).

Apart from low market prices, other problems were longer distances to the markets (8%), lack of transport (4%), high transport costs (4%), lack of buyers (1%) and lack of market information (1%). Other marketing problems are minor and represented less than 1 percent of the total reported problems. (Chart 3.98)



- **Reasons for Not Selling Crops**

The main reason for not selling crops was reported as “insufficient production to sell”, representing 28 percent of the smallholders. The remaining reasons for not selling are in such low numbers that it is not appropriate to rank their importance (Table 3.11).

This general trend applies to all districts except for Lindi Rural, Kilwa and Nachingwea and where the proportion of households reporting other reasons for not marketing their agricultural products is relatively high (36%, 28% and 19% respectively). Farmers’ association problems were reported only in Lindi Rural district.

Table 3.11 Reasons for Not Selling Crop Produce

Main Reason	Household Number	%
Not applicable	98,094	65.5
Production Insufficient to Sell	41,830	28.0
Other	7,152	4.8
Trade Union Problems	927	0.6
Price Too Low	651	0.4
Government Regulatory Board Problems	445	0.3
Co-operative Problems	216	0.1
Farmers Association Problems	209	0.1
Market Too Far	127	0.1
Total	149,653	100.0

3.3.7 Access to Crop Production Services

3.3.7.1 Access to Agricultural Credit

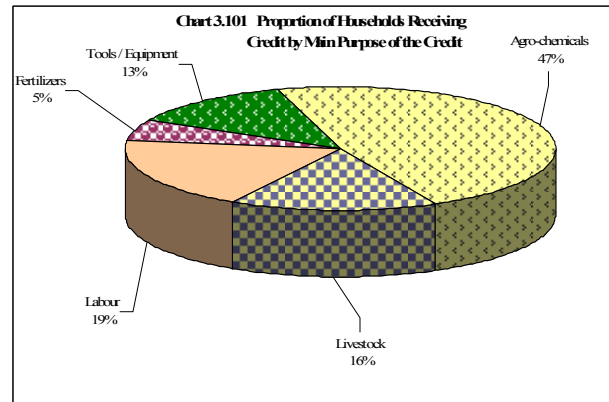
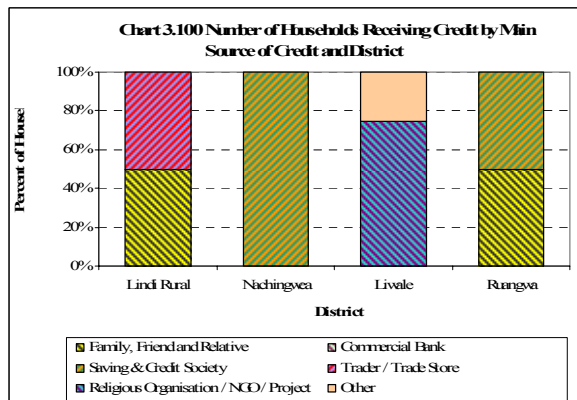
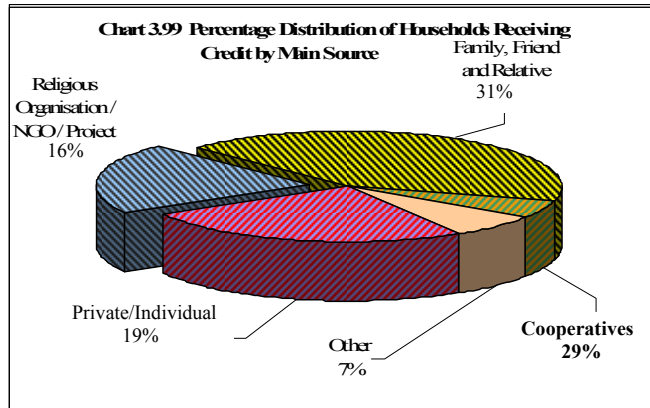
The census result shows that in Lindi region very few agricultural households (535, 0.3% of total agricultural households) accessed credit out of which 405 (76%) were male-headed households and 130 (24%) were female headed households. In Nachingwea and Ruangwa districts only male headed households got agricultural credit whereas in Lindi Rural credit was equally accessed by the male and female headed households. In Liwale district, of the household that accessed agricultural credit 75% were male headed households. (Table 3.12).

Table 3.12 Number of Agricultural Households that Received Credit by Sex of Household Head and District

District	Male		Female		Total
	Number	%	Number	%	
Lindi Rural	100	50	101	50	201
Nachingwea	85	100	0	0	85
Liwale	84	75	28	25	112
Ruangwa	137	100	0	0	137
Total	405	76	130	24	535

• **Source of Agricultural Credit**

The agricultural credit providers in Lindi region were family, friends and relatives (31%), cooperatives (29%) and private individuals (19%), religious organizations/ NGOs/projects (16%) and other sources (5%). (Chart 3.99) Commercial banks did not provide any credits in all districts. Private individuals provided credit in Lindi Rural district only. Family, friends and relatives were major credit providers in Lindi Rural district. Religious organization, NGO and projects were more involved in funding a relatively great number of households in Liwale district (Chart 3.100).

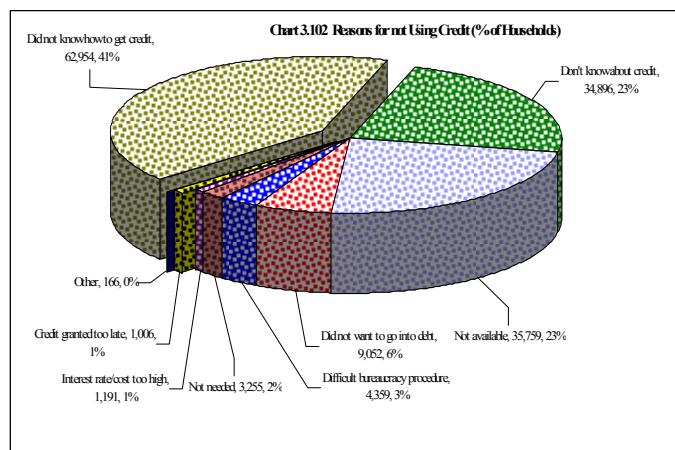


• **Use of Agricultural Credit**

A large proportion of the agricultural credit provided to agricultural households in the region were used to buy agrochemicals (47%), labour (19%), livestock (16%), tools and equipments (13%) and fertilizers (5%) (Chart 3.101).

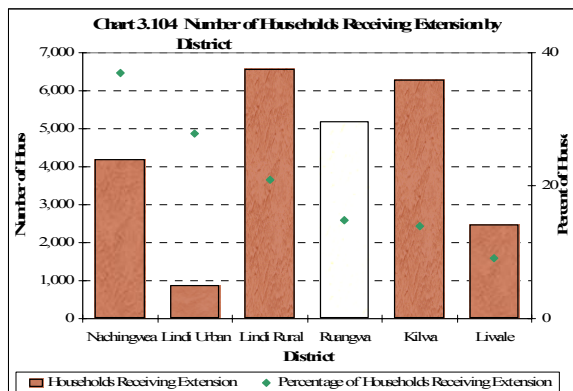
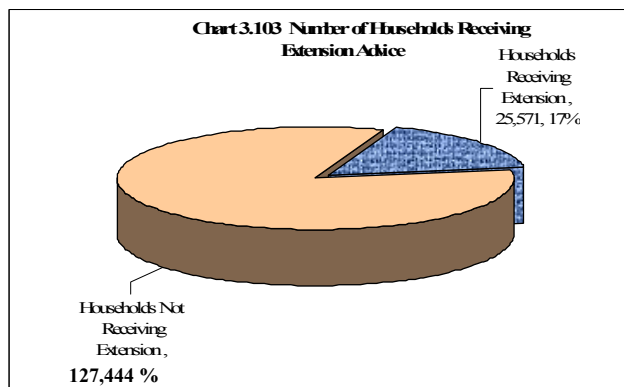
• **Reasons for Not Using Agricultural Credit**

The main reason for not using agricultural credit as a source of finance was little credit awareness accounting to 64.1 percent of the agricultural households (“did not know how to get credit” and “don’t know about credit”). This was followed by households reporting the un-availability of credit (23.4%), followed by “not wanting to go into debt” (5.9%) The rest of the reasons collectively accounted for 16.6% of the households that did not access credit. (Chart 3.102)



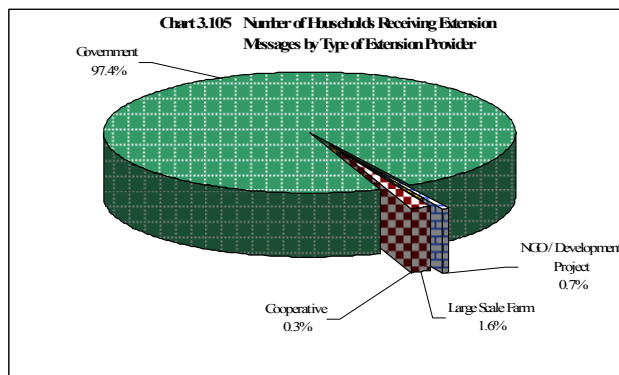
3.3.7.2 Crop Extension

The number of agricultural households that received crop extension was 25,571 (16.7% of total crop growing households in the region) (Chart 3.103). Some districts had more access to extension services than others, with Nachingwea having a relatively high proportion of households (37%) that received crop extension messages in the district followed by Lindi Urban (28%), Lindi Rural (21%), Ruangwa (15%), Kilwa (14%) and Liwale (9%) (Chart 3.104) and Map 4.43



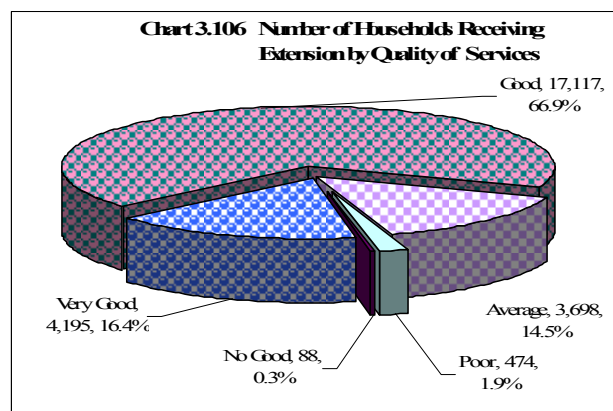
- Sources of Crop Extension Messages**

The major source of extension advice was the government which provided advice to 24,848 agricultural household (97.4 of the total number of households that received advice) large scale farms provided 1.6 percent, followed by NGOs/development projects that provided 0.7 percent, and the cooperatives 0.3 percent. (Chart 3.105 and Map 4:43) However district differences existed with the proportion of the households receiving advice from government services with Kilwa, Liwale and Lindi Urban being 100 percent.



- Quality of Extension**

On the quality of extension, 67 percent of the households receiving extension ranked the service as being good, followed by very good (16%), average (15%), poor (2%) no good (0.3%) (Chart 3.106). However, care should be exercised when making decisions on quality of extension and also other variables in the extension report as all the enumerators were extension agents and some degree of bias can be expected.



A small number of households used inputs and this was particularly true of the inputs that are not produced on farm e.g. improved seeds, fungicides, inorganic fertilisers and herbicides. In Lindi region pesticides/fungicides were used by 26,131 households which represented 17.06 percent of the total number of crop growing households. This was followed by households using improved seeds (8.22%), compost (2.28%), farm yard manure (1.87%), inorganic fertilizers (1.04%) and herbicides (0.04%). (Table 2.13)

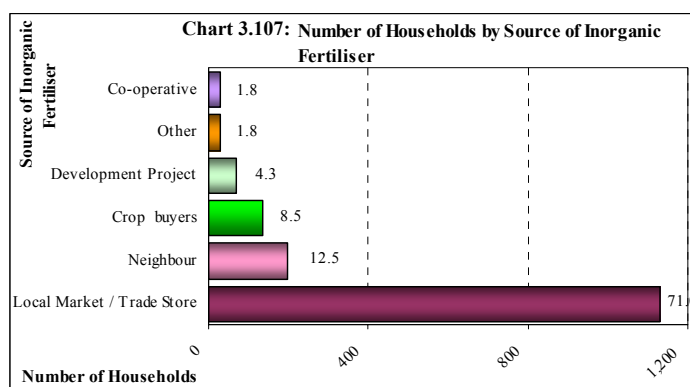
3.3.8 Access to Inputs

3.3.8.1 Use of Inputs

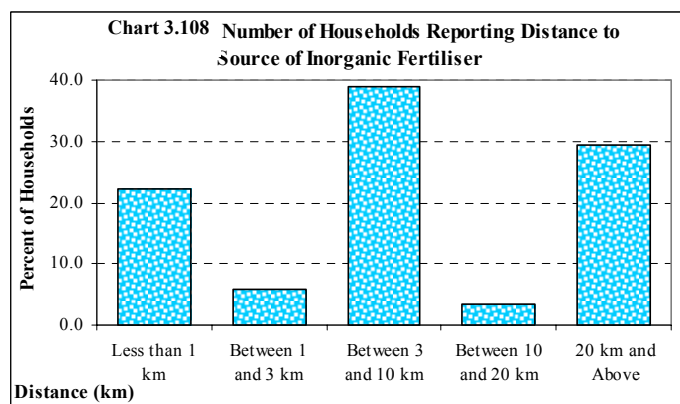
Access to inputs in this section refers to all crop growing households in Lindi region regardless of whether the household grew annual or permanent crops. In previous sections the reference was to annual crops only. Because of this the figures presented in this section may differ from those in the previous sections on inputs especially section 2.6. Data on source of inputs is only found in this section and applies to both annual and permanent crops.

- **Inorganic Fertilisers**

Smallholders who used inorganic fertilisers in Lindi mostly purchased them from the local market/trade store (71.0% of the total number of inorganic fertiliser users) followed by from neighbour (12.5 %), crop buyers (8.5%), development project (4.3%), cooperative (1.8%) and from other sources (1.8%) (Chart 3.107)



Access to inorganic fertiliser was mainly less than 10 km from the household with most households being between 3 and 10 km from the source (38.8%), followed by above 20 km (29.5%), less than 1 km (22.3%), between 1 and 3 km (5.8%) and between 10 and 20 km (3.5%). (Chart 3.108) Due to the very small number of households using inorganic fertilisers coupled



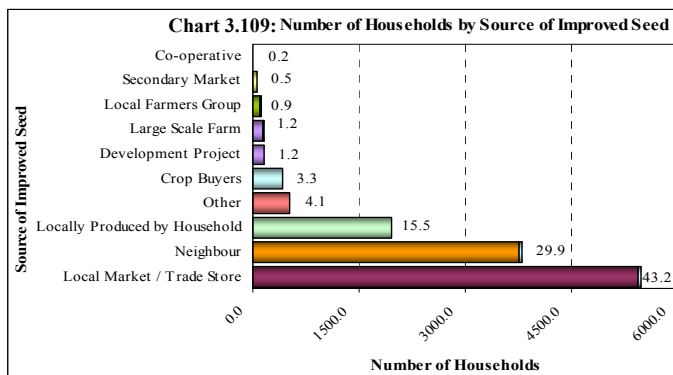
with the small number of households responding to “non available” (39%) as the reason for not using the fertilizers, it may be assumed that access to inorganic fertiliser was not the main reason for not using them. Other reasons such as cost were more important with 33 percent of households responding to cost factors as the main reason for not using the fertilizers. In other words, if the cost was affordable the demand would be higher and inorganic fertilisers would be made more available. More smallholders in Ruangwa used inorganic fertilisers than in other districts in Lindi Region (55.5% of households using inorganic fertilisers), followed by Liwale (21.0%), Lindi Rural (18.1%) and Nachingwea (5.4%) (Other districts reported not using inorganic fertiliser in Lindi region).

Table 2.13 Access to Inputs

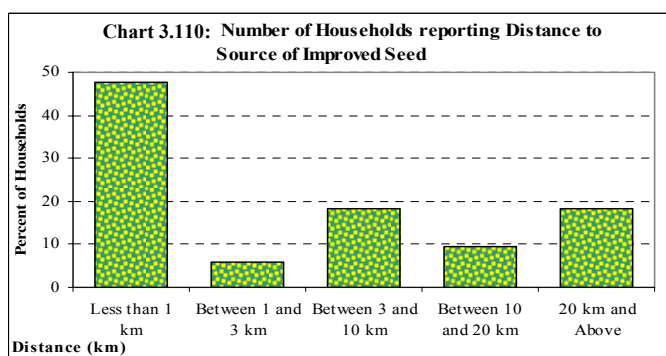
Type of Input	Households With Access to Input		Households Without Access to Inputs	
	Number	%	Number	%
Farm Yard Manure	2,865	1.87	150,150	98.13
Improved Seeds	12,591	8.22	140,424	91.78
Insecticides/Fungicide	26,131	17.06	126,883	82.94
Compost	3,492	2.28	149,523	97.72
Inorganic Fertiliser	1,591	1.04	151,424	98.96
Herbicide	57	0.04	152,958	99.96

• **Improved Seeds**

The percent of households that used improved seeds were 8 percent of the total number of crop growing households. Most of the improved seeds were from the local market and trade store 43.2 percent. Other sources of improved seeds were from neighbours (29.9%), locally produced by household (15.5%), crop buyers (3.3%) and development projects (1.2%) (Chart 3.109)



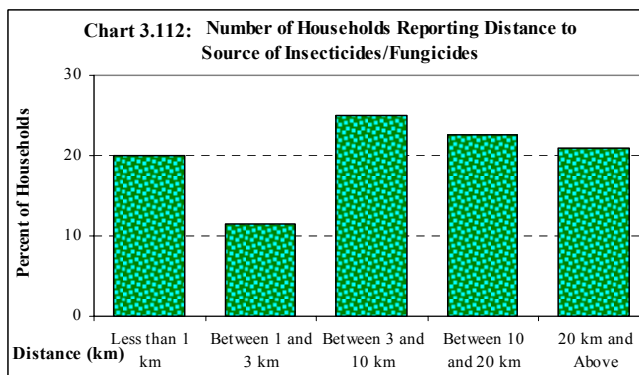
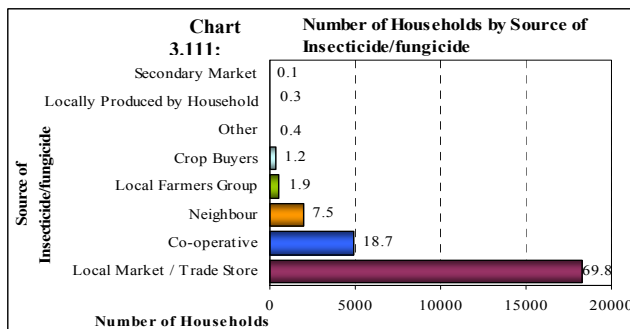
The access to improved seeds was better than other inputs (inorganic fertilizers and insecticides) with 48 percent of households obtaining them within 1 km of the household (Chart 2.110). This is in line with the higher use of improved seed compared to other inputs, which further supports the concept that it is not the availability that is the main issue in the use of inputs but rather other factors such as cost.



Most of smallholders who used improved seeds were Ruangwa (46% of households using improved seeds in the region), followed by Lindi Rural (18%), Kilwa (14%), Liwale (11%), Nachingwea (9%) and Lindi Urban (2%). (Map 2.98).

• **Insecticides and Fungicide**

The percent of households that used insecticides/fungicides was 17 percent of the total number of crop growing households. Most of the insecticides/fungicides were from the local market and trade store 69.8 percent. Other sources of insecticides/fungicides were co-operatives (18.7%), neighbours (7.5%), local farmers groups (1.9%), crop buyers (1.2%), locally produced by household (0.3%), secondary market (0.1%) and from other sources (0.4) (Chart 3.111)



Access to insecticides/fungicides was mainly less than 10 km from the household with most households being between 3 and 10 km from the source (25%), followed by between 10 to 20 km (23%), above 20 km (21%), less than 1 km (20%) and between 1 and 3 km (12%). (Chart 3.112) Due to the very small number of households using insecticides/fungicides

coupled with the small number of households responding to “not available” (24%) as the reason for not using them, it may be assumed that access to insecticides/fungicides was not the main reason for not using them. Other reasons such as cost were more important with 57 percent of households responding to cost factors as the main reason for not using the insecticides/fungicides. In other words, if the cost was affordable the demand would be higher and insecticides/fungicides would be made more available. Most of the smallholders who used insecticides/fungicides were from Nachingwea districts (32% of households using inorganic fertilisers in the region), followed by Lindi Rural (22%), Ruangwa (21%), Liwale (14%), Kilwa (8%) and Lindi Urban (2%)

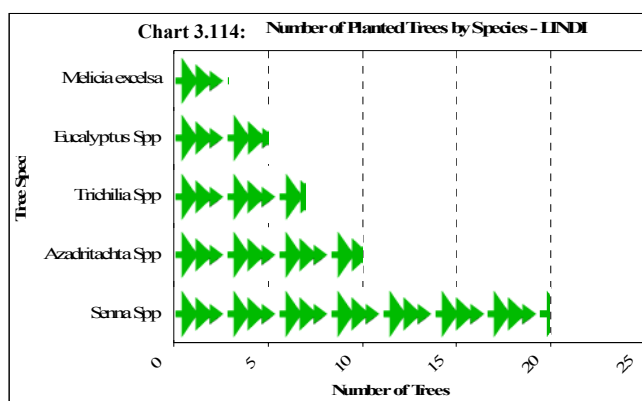
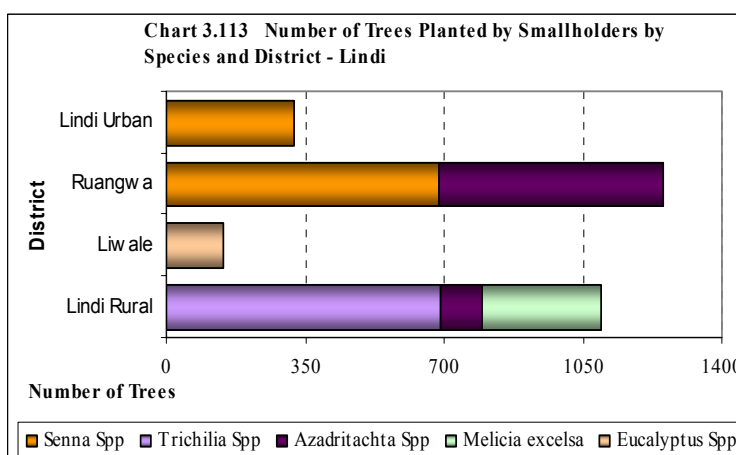
3.3.9 Tree Planting

Tree farming is not common in Lindi District. Natural trees are the major source of trees products used by households in the region. The number of households involved in tree farming was 707 representing 0.5 percent of the total number of agriculture households.

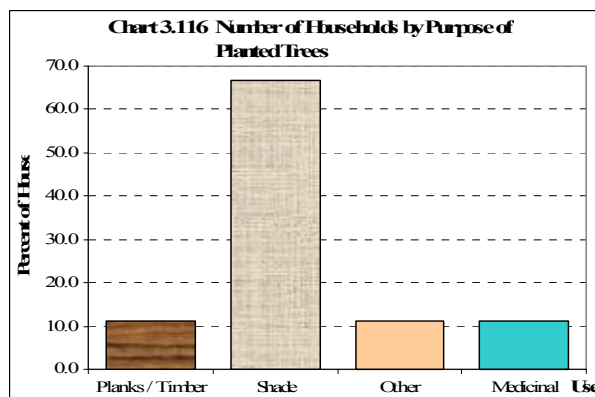
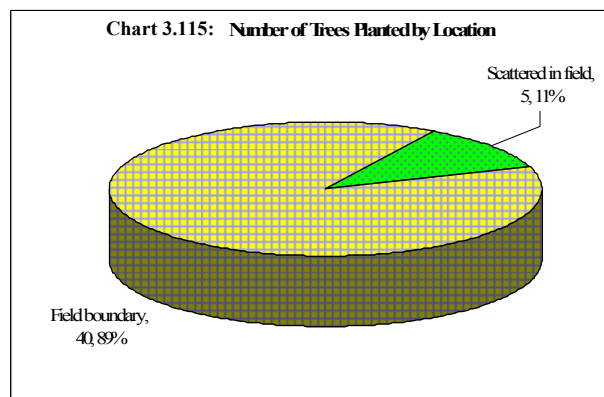
The number of trees planted by smallholders on their allotted land was 2,812 trees. The average number of trees planted per household that plants trees was 4.

The main species planted by smallholders is *Senna spp* (1,008 trees, 36%), followed by *Trichilia* (693, 25%), azadirachta indica (668 trees, 24%), *Melcia excelsa* (301 trees, 11%), *Eucalyptus* (142 trees, 5%) and. The remaining trees species were planted in very small numbers (Chart 113.). Lindi Rural had the largest number of smallholders with planted trees than any other district (48%) and is dominated by *Senna spp* species. This is followed

by Ruangwa (41%) which is dominated by *Trichilia spp* and to a lesser extent *Melcia excelsa*, then Liwale (6%) and Lindi Urban (5%) which is mainly planted with *Eucalyptus spp* (Chart 3.114 and Map 3.45).



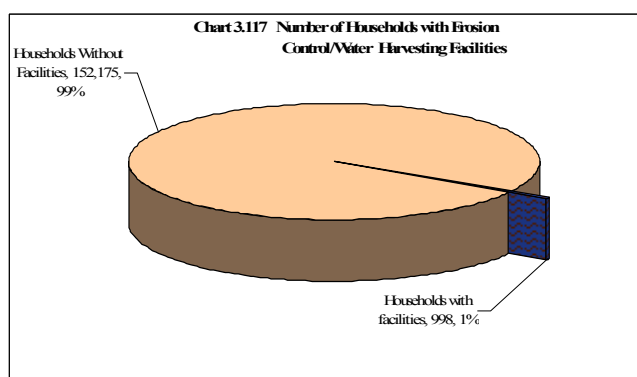
Most smallholders plant trees on the boundary of fields. The proportion of households that plant on field boundaries is 95 percent, followed by scattered around fields (5%). There were no trees planted in a plantation or coppice. (Chart 3.115). The main purpose of planting trees was to provide shade (57%). This was followed by planks/timber and medicinal use (16% each) and other uses (11%) (Chart 3.116).



3.3.9.1 Irrigation and Erosion Control Facilities

Erosion control and water harvesting facilities are grouped together as they normally have dual purposes of reducing erosion and increasing the amount of water available for crop production.

The number of agricultural households that had soil erosion and water harvesting facilities on their farms was 998. This number represented 1 percent of total number of agricultural households in the region (Chart 3.117).

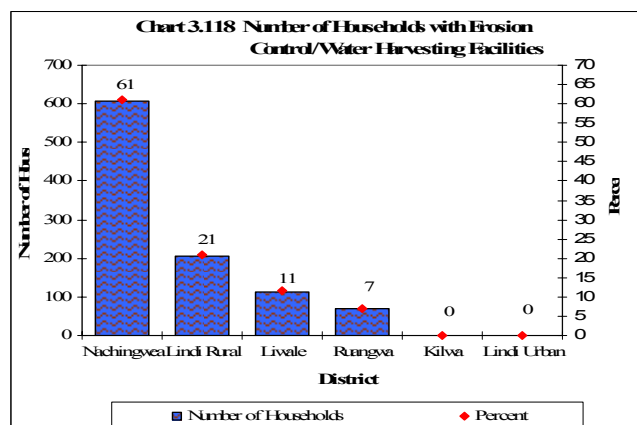


The proportion of households with soil erosion control and water harvesting facilities was highest in Nachingwea District (61%) followed by Lindi Rural (21%), Liwale (11%) and Ruangwa (7%) (Chart 3.118).

Erosion control by control bunds had 33,797 structures. This represented about 98.8 percent of the total structures in the region, and the remaining percentage was shared among the rest of the erosion control methods mentioned above: gabions/sand bags (0.6%) and vetiver grass and drainage ditches (0.3% each).

With exception of Lindi Rural District, erosion control bunds structures were widely used in all districts. Nachingwea had 31,630 erosion control bund structures (93.6%), followed Ruangwa (2,053 structures, 6.1%) and Liwale (114 structures, 0.3%). Drainage ditches and gabions/sandbag were used in Lindi Rural district only and vetiver grass in Liwale.

Nachingwea districts reported to have 31,630 control erosion structures and this was about 92.5 percent of the total structures in the region.



3.4 LIVESTOCK RESULTS

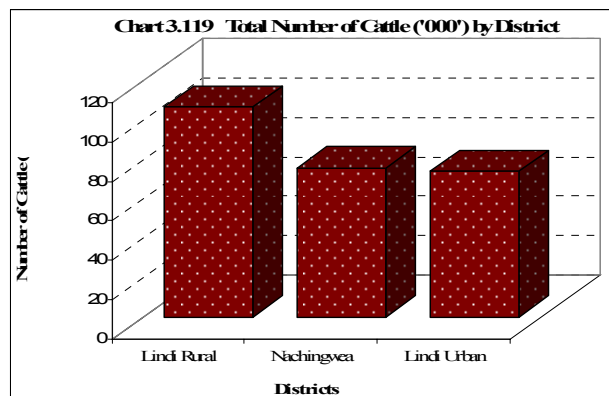
3.4.1 Cattle Production

The total number of cattle in the region was 3,081. Goats were the dominant livestock type in the region followed by sheep, pigs and cattle. The region had 0.02 percent of the total cattle population on Tanzania Mainland.

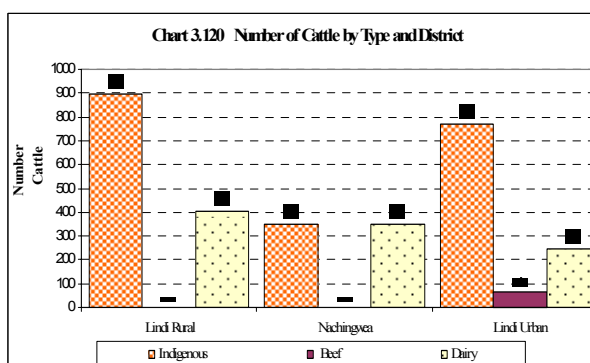
3.4.1.1 Cattle Population

The number of indigenous cattle in Lindi region was 2,019 (65.5 % of the total number of cattle in the region), 998 cattle (32.4%) were dairy breeds and 64 cattle (2.1%) were beef breeds.

The census results show that 838 agricultural households (0.5% of the total agricultural households) kept 3,081 cattle. This was equivalent to an average of 4 heads of cattle per cattle-keeping-household. The district with the largest number of cattle was Lindi Rural which had about 1,300 (42%) cattle. Other districts and their respective estimated number of cattle were Lindi Urban 1,080 (35%) and Nachingwea 700 (23%) (Chart. 3.119) and (Map 3.47)

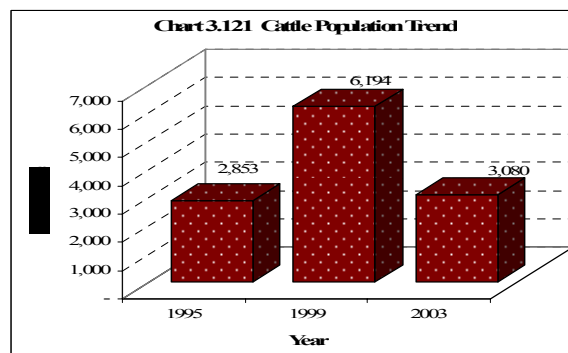


Lindi Rural and Lindi Urban districts had the largest number of both indigenous and improved dairy cattle. Improved beef cattle were only available in Lindi Urban district. The number of dairy cattle was very small and the number of beef cattle was insignificant. Lindi Rural district had the largest number of dairy cattle in the region. In general, the number of beef cattle in the region was insignificant (Chart 3.120)



3.4.1.2 Herd Size

Eighty percent of the cattle-rearing households had herds of size 1-5 cattle with an average of three cattle per household each. The herds of size 6-10 accounted for about 27 percent of all cattle in the region. Only 4 percent of the cattle rearing households had head sizes of 16- 20 cattle. About 96 percent of total cattle rearing households had herds of size 1-10 cattle and owned 82 percent of total cattle with an average of five cattle per household. There were no households with more than 20 cattle per household.



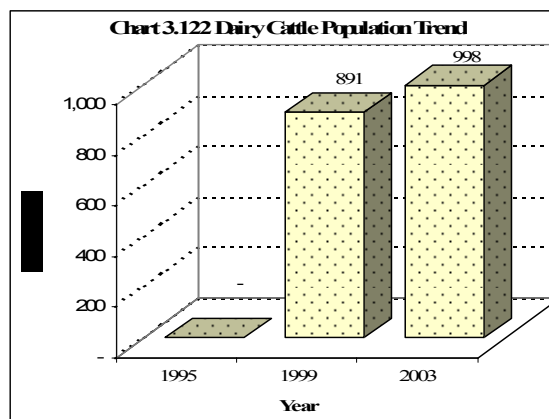
3.4.1.3 Population Trend

Cattle population in Lindi increased during the period of eight years from 2,853 in 1995 to 3,080 in 2003 which implies an overall positive annual growth rate of 0.96 percent (Chart 3.121).

However, there was a very sharp increase in number of cattle over the period of four years from 1995 to 1999 at an average growth rate of 21.4 percent, whereby the number of cattle increased from 2,853 to 6,194. However, the number of cattle is estimated to have decreased from 6,194 in 1999 to 3,080 in 2003 at the rate of -16%.

3.4.1.4 Improved Breeds

The total number of improved cattle in Lindi region was 1,062 (998 dairy and 64 improved beef). The dairy cattle constituted 32.4 percent of the total cattle and 94 percent of improved cattle in the region. The number of beef cattle in the region was insignificant constituting only 6 percent of the total number of the improved cattle and 2.1 percent of the total cattle. No data on improved cattle breeds was



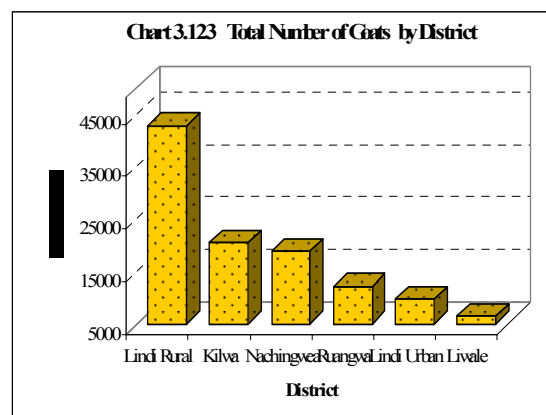
collected in Lindi collected in the 1995 sample census. However, the number of improved cattle increased from 891 in 1999 to 998 in 2003 at an average annual growth rate of 2.9 percent (Chart 122).

4.4.2 Goat Production

Goat rearing was the most important livestock keeping activity in the region followed by sheep and pig and cattle rearing. In terms of total number of goats on the Mainland, Lindi region ranked 19 out of the 21 regions with 0.9 percent of the total goats on the Mainland

4.4.2.1 Goat Population

The number of goat-rearing-households in the region was 14,084 (9.2% of all agricultural households) with a total of 110,506 goats giving an average of 8 head of goats per goat-rearing-

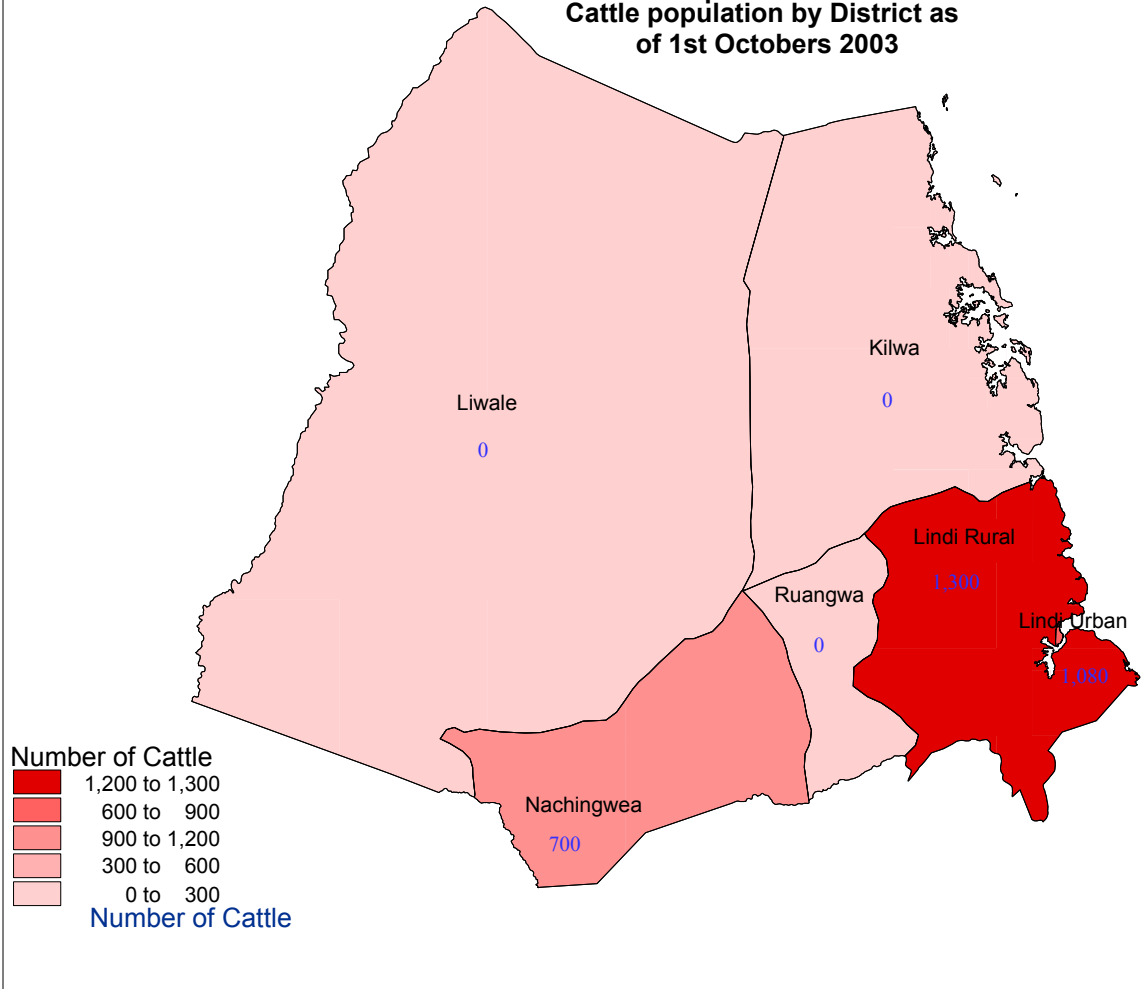


households. Lindi Rural had the largest number of goats estimated at 42,758 (39% of all goats in the region) followed by Kilwa 20,531 (19%), Nachingwea 18,807 (17%), Ruangwa 12,200 (11%), Lindi Urban 9,694 (9%) and Liwale 6,515 (6%) (Chart 3.123). (Map 3.49).

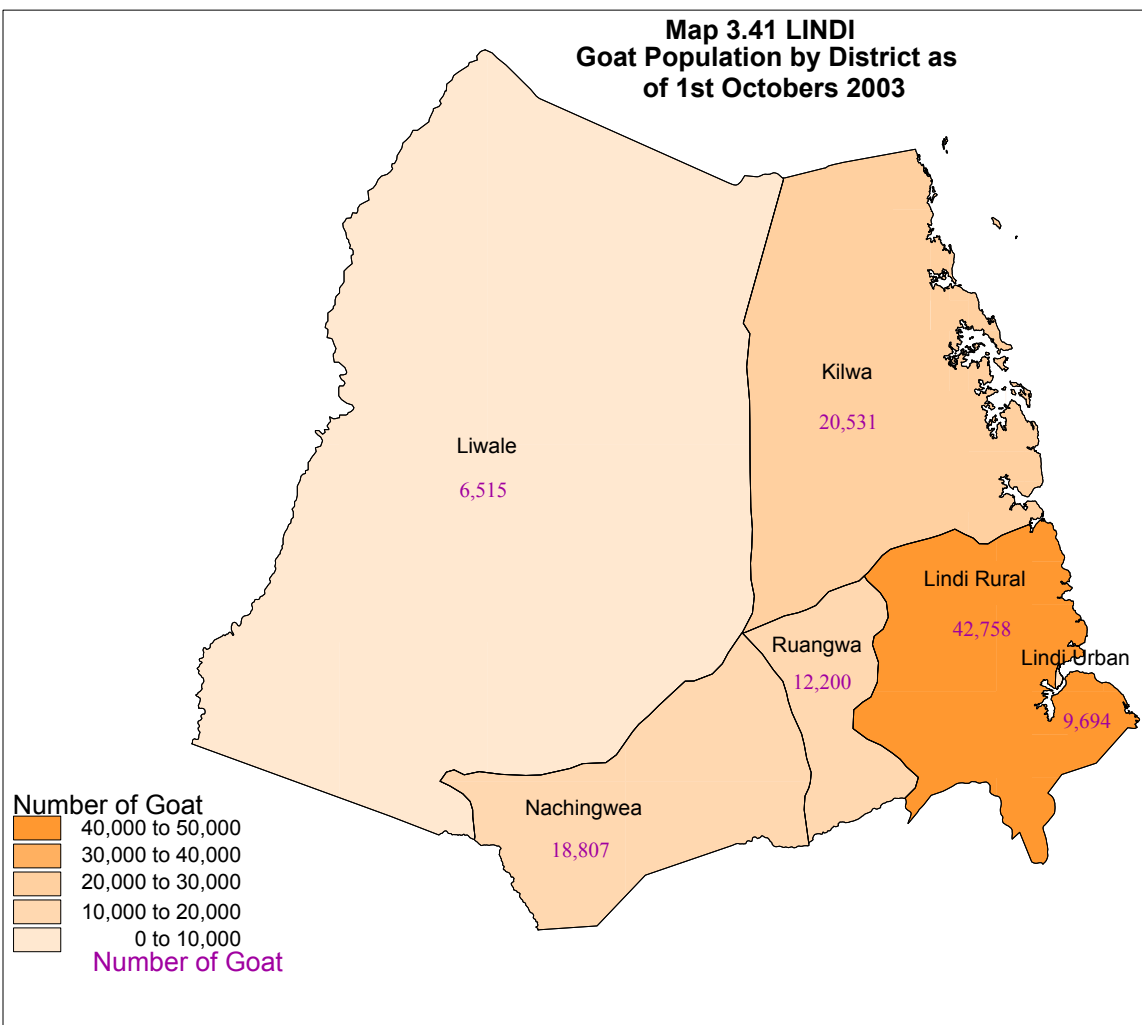
3.4.2.2 Goat Herd Size

Thirty six percent of the goat-rearing households had herd sizes of 1-4 goats with an average of 3 goats per goat rearing household. Ninety percent of total goat-rearing households had herd sizes of 1-14 goats and owned 66 percent of the total goats in the region resulting in an average of 7 goats per goat-rearing households. The region had 164 households (1%) with herd sizes of 40 or more goats each (12,716 goats in total), resulting in an average of 75 goats per household.

Map 3.40 LINDI
Cattle population by District as
of 1st Octobers 2003



Map 3.41 LINDI
Goat Population by District as
of 1st Octobers 2003

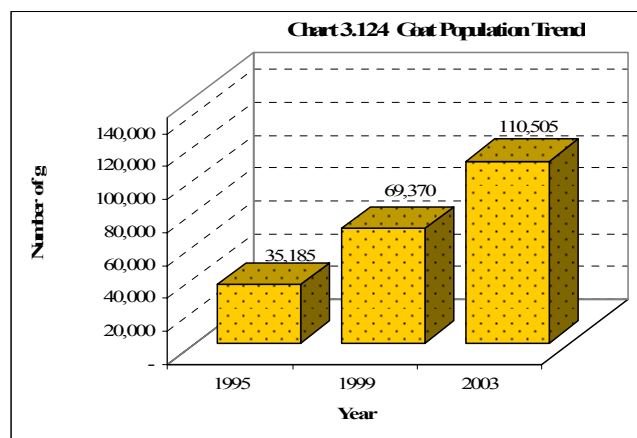


3.4.2.3 Goat Breed

Goat husbandry in the region was dominated by the indigenous breeds that constituted 93 percent of the total goats in Lindi region. Improved goats for meat and dairy goats constituted 3 and 4 percent of total goats respectively.

3.4.2.4 Goat Population Trend

The overall annual growth rate of goat population from 1995 to 2003 was 15.3 percent. This positive trend implies eight years of population increase from 35,185 in 1995 to 110,505 in 2003. The number of goats increased from 35,185 in 1995 at an estimated annual rate of 18.5 percent to 69,370 in 1999. From 1999 to 2003, the goat population increased at an average annual growth rate of 12.3 percent (Chart 124).

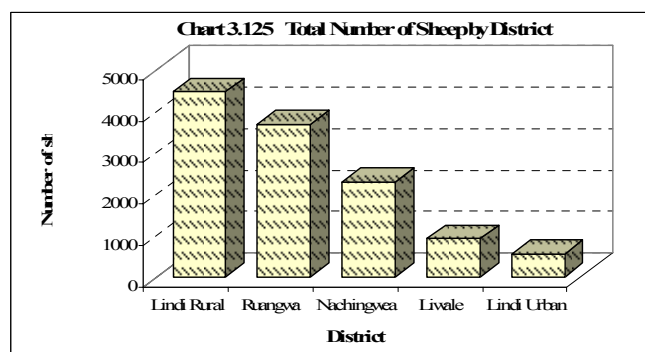


3.4.3 Sheep Production

Sheep rearing was the second most important livestock keeping activity in Lindi region after cattle and goats. The region ranked 20th out of 21 Mainland regions and had 0.3 percent of all sheep on Tanzania Mainland.

3.4.3.1 Sheep Population

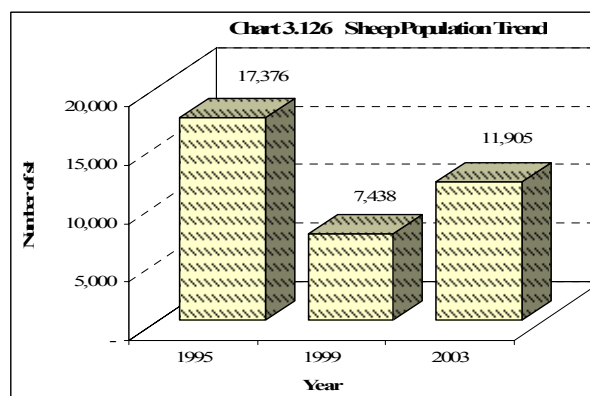
The number of sheep-rearing households was 1,555 (1% of all agricultural households in Lindi region) rearing 11,905 sheep, giving an average of 8 heads of sheep per sheep-rearing household. The district with the largest number of sheep was Lindi Rural with 4,464 sheep (37% of total sheep in Lindi region) followed by Ruangwa (3,678 sheep, 31%), Nachingwea (2,285 sheep, 19%) and Liwale (926 sheep, 8%). Lindi Urban District had the least number of sheep (552 sheep, 5%) (Chart 3.125 and Map 3.51).



Sheep rearing was dominated by indigenous breeds that constituted 97.5 percent of all sheep kept in the region. Only 2.5 percent of the total sheep in the region were improved breeds adding up to 299 sheep and all reared in Lindi Rural District.

3.4.3.2 Sheep Population Trend

The overall annual growth rate of the sheep population for the eight year period from 1995 to 2003 is estimated at

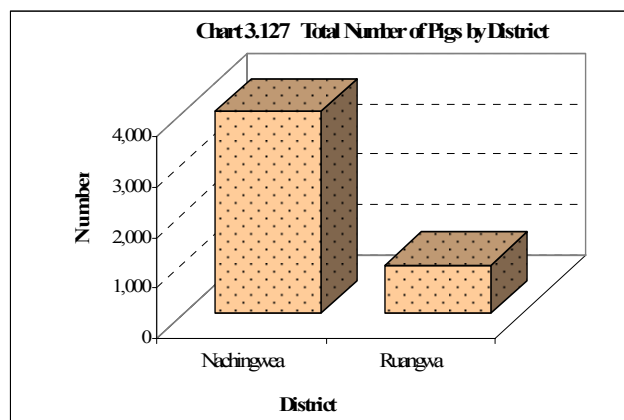


-4.6 percent. The population decreased at an annual rate of -19.1 percent from 17,376 in 1995 to 7,438 in 1999. From 1999 to 2003, sheep population increased at an average annual rate of 12.5 percent (Chart 3.126).

3.4.4 Pig Production

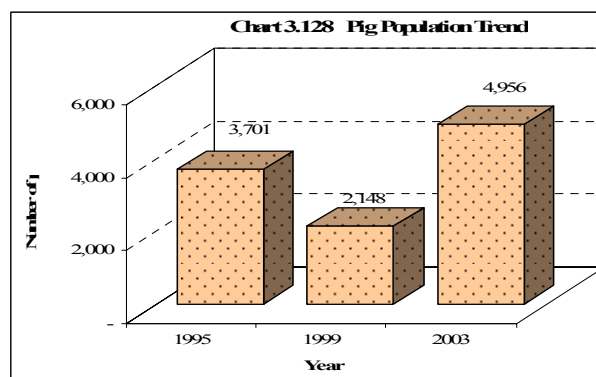
Piggery was the third most important livestock keeping activity in the region followed by cattle. The region ranks 17th out of 21 Mainland regions and had 0.51 percent of the Mainland total pigs.

The number of pig-rearing agricultural households in Lindi region was 1,407 (1% of the total agricultural households in the region) rearing 4,956 pigs. This gives an average of 4 pigs per pig-rearing household. Pigs were reared in Nachingwea and Ruangwa districts only. There were no pigs in Lindi Rural, Lindi Urban, Kilwa and Liwale districts. The district with the largest number of pigs was Nachingwea with 4,000 pigs (81% of the total pig population in the region) followed by Ruangwa (956 pigs, 19%). (Chart 3.127 and Map 3.53)



3.4.4.1 Pig Population Trend

The overall annual growth rate of the pig population for the eight years period from 1995 to 2003 was 3.72 percent. During this period the population grew from 3,701 to 4,956. The pig population decreased from 3,701 in 1995 to 2,148 in 1999 at a rate of -12.72 percent. The growth rate increased to 23.25 percent during the following four years from 1999 to 2003 in which pig population increased from 2,148 to 4,956 (Chart 3.128).



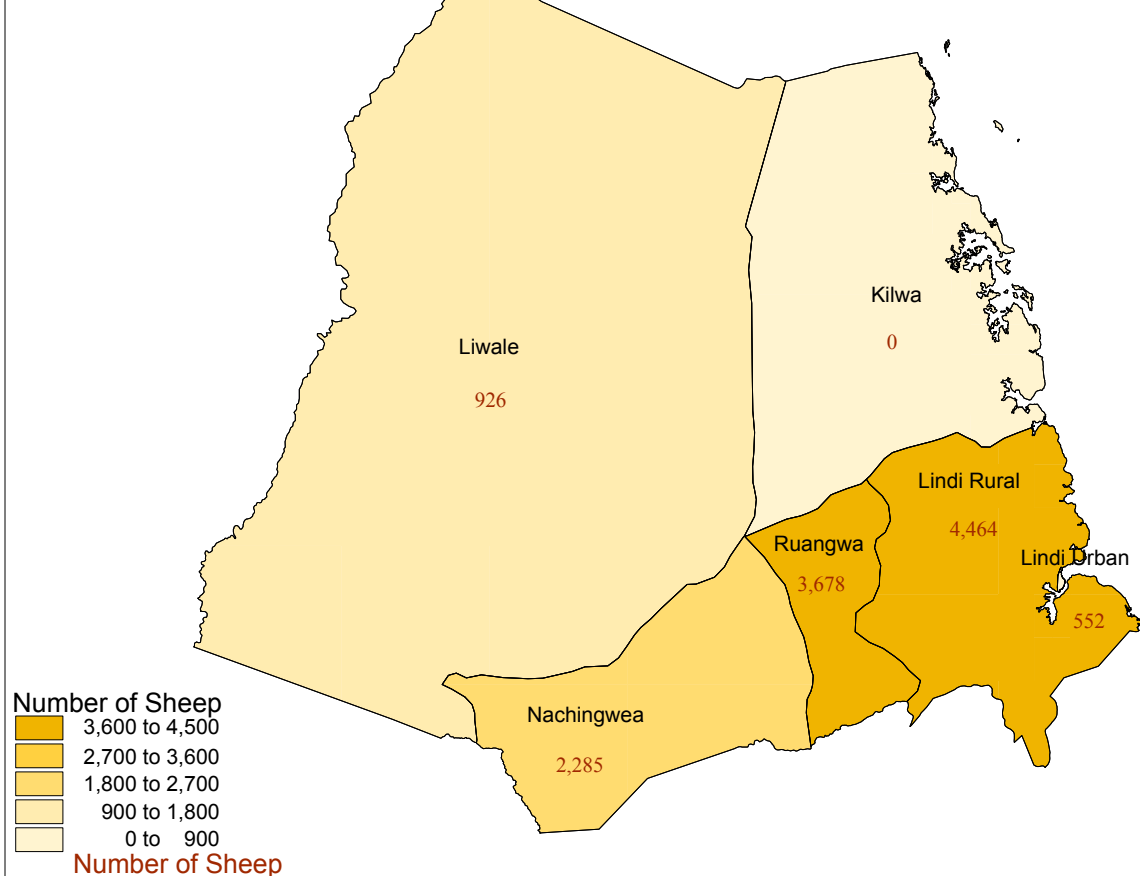
3.4.5 Chicken Production

The poultry sector in Lindi region was dominated by chicken production. The region contributed 3.4 percent to the total chicken population on Tanzania Mainland.

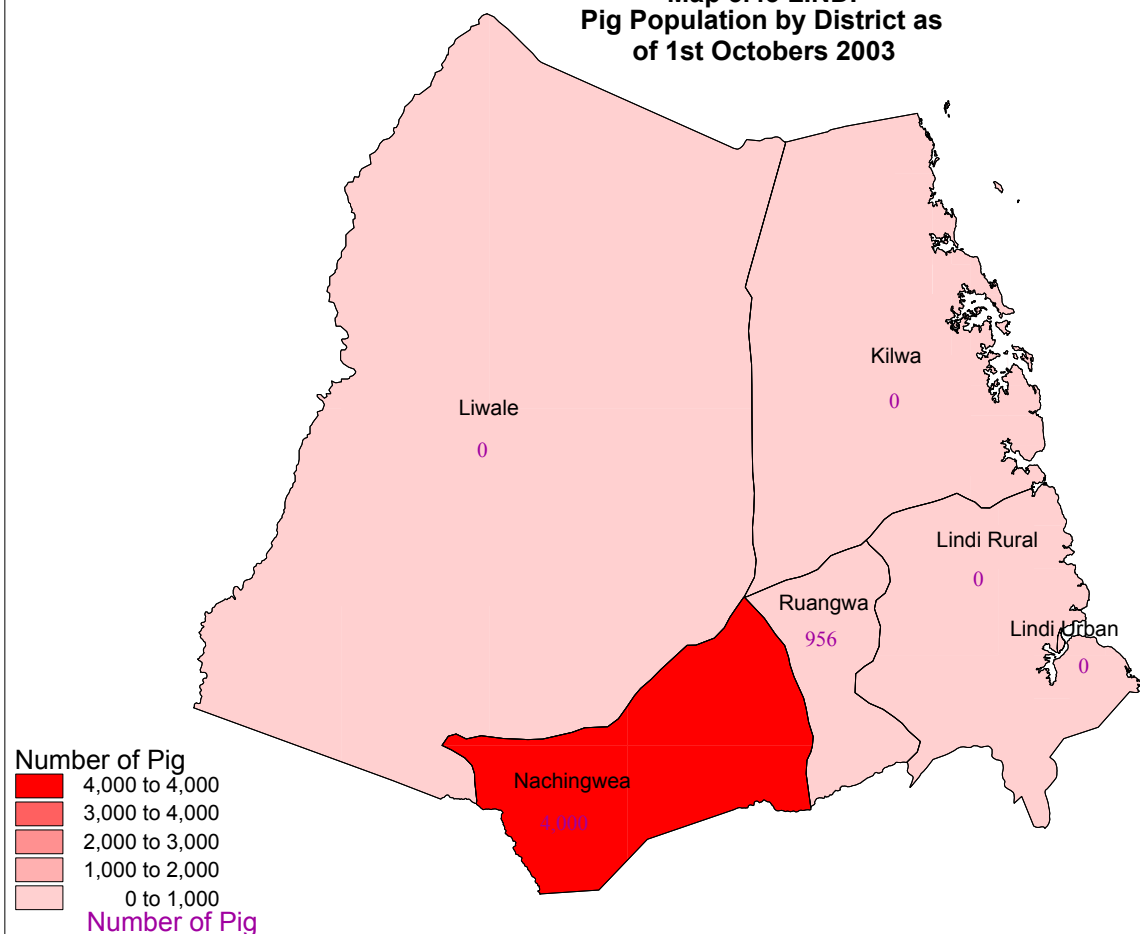
3.4.5.1 Chicken Population

The number of households keeping chicken was 83,711 raising about 1,261,290 chickens. This gives an average of 15 chickens per chicken-rearing household. In terms of total number of chickens in the country, Lindi region was ranked 14th out of the 21 Mainland regions.

Map 3.42 LINDI
Sheep Population by District as
of 1st October 2003



Map 3.43 LINDI
Pig Population by District as
of 1st October 2003



The district with largest number of chickens was Lindi Rural (387,594 chickens, 31% of the total number of chickens in the region) followed by Kilwa (345,679, 27%), Nachingwea (230,370, 18%), Ruangwa (175,220, 14%), Liwale (106,553, 8%) and Lindi Urban (15,875 chickens, 1%) (Chart 3.129 and Map 3.55). However, Lindi Urban district had the highest density (2,646 chickens per km²) (Map 3.56).

3.4.5.2 Chicken Population Trend

The overall annual chicken population growth rate during the eight-year period from 1995 to 2003 was 5.2 percent. The population decreased at a rate of -0.1 percent from 1995 to 1999 after which it increased at the rate of 10.9 percent for the four year period from 1999 to 2003 (Chart 3.130).

Eighty five percent of all chicken in Lindi region were of indigenous breed. The dominance of indigenous breed makes the population trend for the indigenous chicken more-or-less the same as that of the total chickens in the region.

3.4.5.3 Chicken Flock Size

The results indicate that about 82 percent of all chicken-rearing households were keeping 1-19 chickens per household with an average of 7 chickens per holder. About 17 percent of holders reported to be keeping the flocks of size 20 to 99 chickens with an average of 32 chickens per household. Only one percent of holders kept the flocks of more than 100 chickens at an average of 479 chickens per household (Table 3.15).

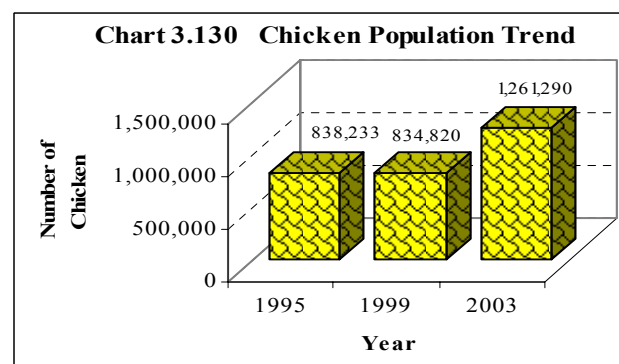
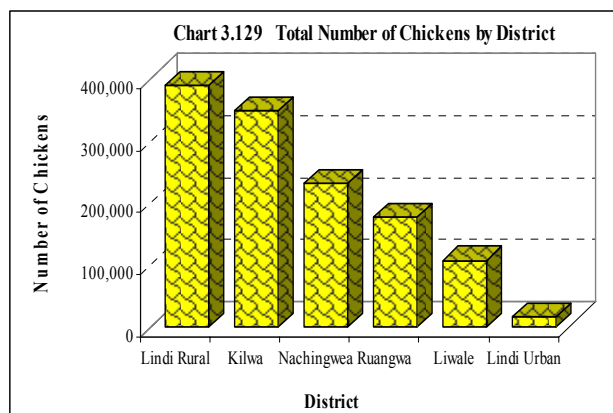
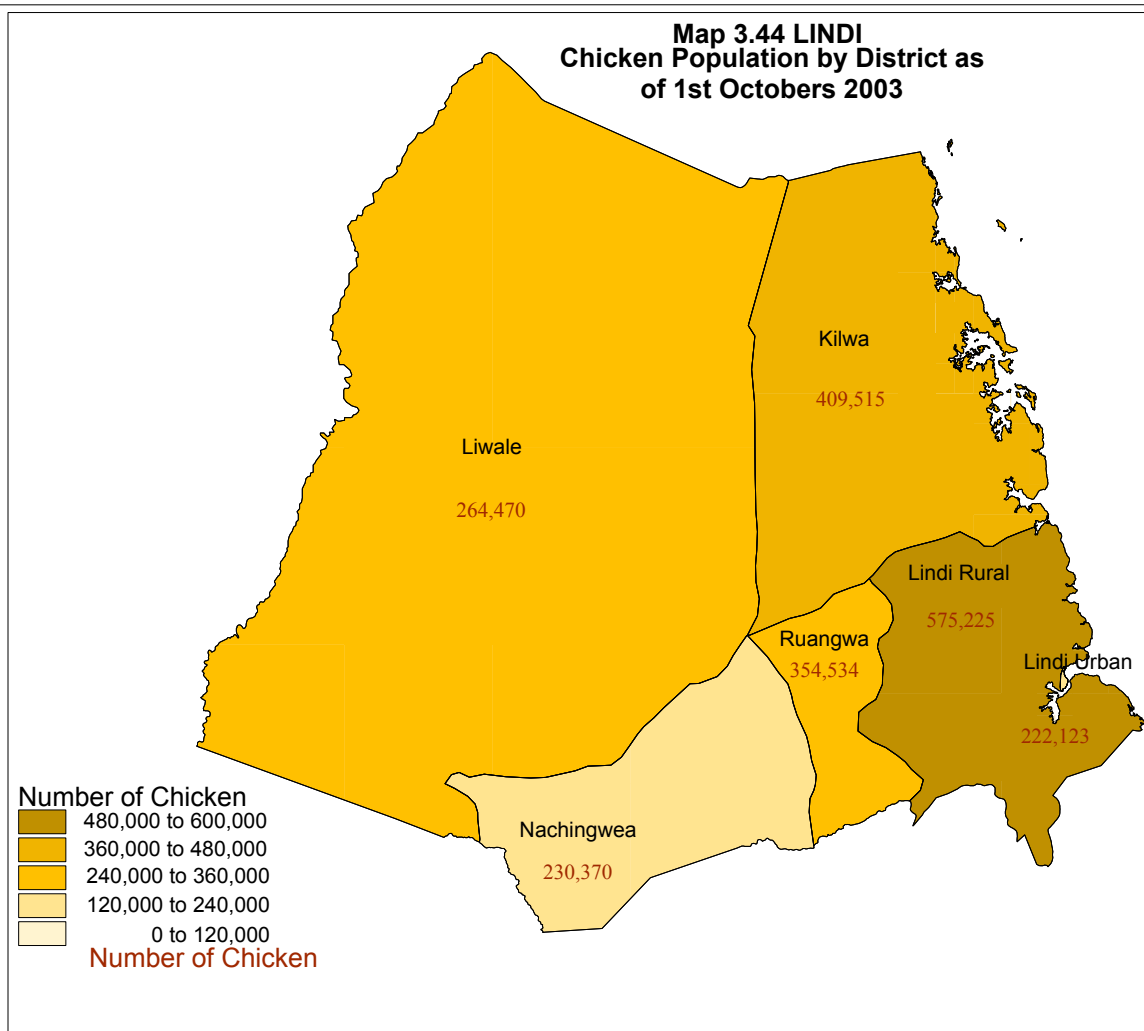


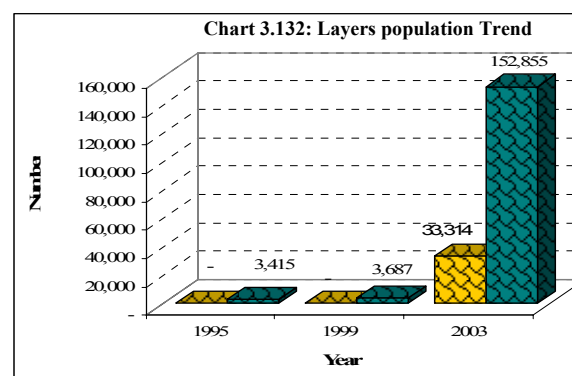
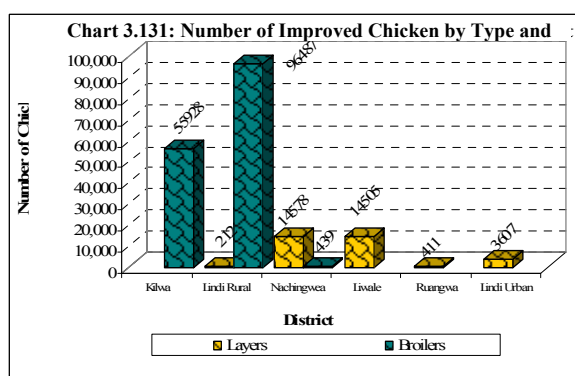
Table 3.14 Number of Households and Chickens Raised by Flock Size

Flock Size	Number of Households	%	Number of Chicken	Average Chicken by Households
1-4	22677	27	57500	3
5-9	22390	27	147318	7
10-19	23119	28	298654	13
20-29	7398	9	167849	23
30-39	3763	4	120978	32
40-49	1461	2	62380	43
50-99	1505	2	100646	67
100+	639	1	305967	479
Total	82952	100	1261290	15



3.4.5.4 Improved Chickens (layers and broilers)

Layers chicken population in Lindi Region was 33,314 in 2003. The number of improved chicken was most significant in Lindi Rural District followed by Kilwa (Chart 3.131).



The overall annual growth rate for broilers during the eight-year period from 1995 to 2003 was 60.83 percent during which the population grew from 3,415 to 152,855. The annual growth rate was 1.93% for the period of four years from 1995 to 1999. The broiler population increased at a very high rate of 153.75 percent per annum during the following four year period resulting in an increase from 3,687 in 1999 to 152,855 in 2003 (Chart 3.132).

3.4.6 Other Livestock

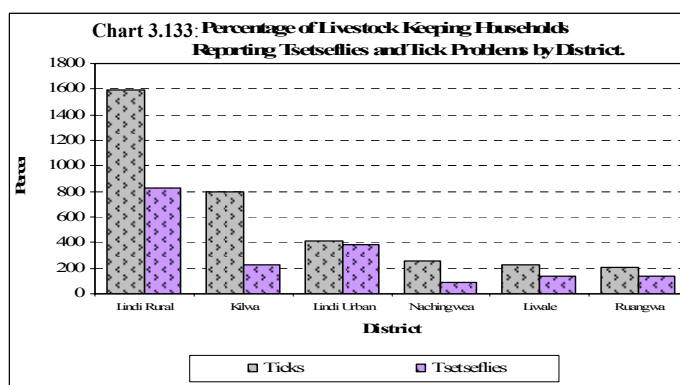
There were 35,334 ducks, 6,207 turkeys, 2,489 rabbits and 2,159 donkeys raised by rural agricultural households in Lindi region. Table 3-16 indicates the number of livestock kept in each district. The biggest number of ducks in the region was found in Nachingwea district (43.4% of all ducks in the region), followed by Ruangwa (31.5%), Lindi Rural (15.1%), Kilwa (5.9%) and Liwale (3.8%). Lindi Urban district had the least number of ducks estimated at 0.3 percent of total ducks in the region. Turkeys were not reported in Kilwa, Nachingwea and Lindi Urban districts. Lindi rural district had 5,155 turkeys (83%), followed by Liwale (914 turkeys, 15%) and Ruangwa (139 turkeys, 2%). Rabbits were reported in Kilwa and Nachingwea districts, while donkeys were reported only in Liwale district (Table 3.16).

Table 3.15 Number of Other Livestock by Type of Livestock and District

District	Type of Livestock				
	Ducks	Turkeys	Rabbits	Donkeys	Other
Kilwa	2,090	0	72	0	0
Lindi Rural	5,344	5,155	0	0	1,592
Nachingwea	15,351	0	176	0	607
Liwale	1,328	914	0	2,159	737
Ruangwa	11,116	139	0	0	716
Lindi Urban	104	0	0	0	0
Total	35,334	6,207	247	2,159	3,653

3.4.7 Pest and Parasite Incidence and Control

The results indicate that 23 percent and 12 percent of the total livestock-keeping households reported to have encountered ticks and tsetse fly problems respectively. Chart 3.133 shows that there was a



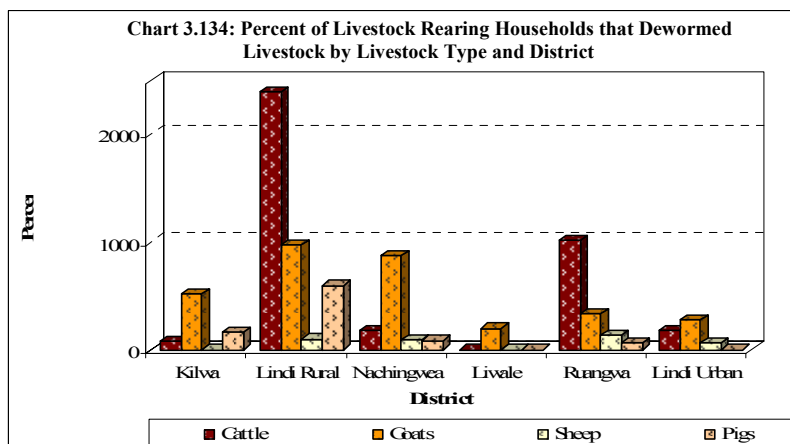
predominance of tick related diseases over tsetse related diseases. Incidences of both problems were highest in Lindi Rural district but lowest in Nachingwea, Liwale and Ruangwa Districts (Map 3.57).

The most practiced method of tick control was spraying with 39 percent of all livestock-rearing households in the region using the method. Other methods had (31%) and dipping (5%). However, 25 percent of livestock-keeping households having tick problems did not use any method.

The most common method used to control tsetse flies was spraying which was practiced by 26 percent of livestock-rearing households. This was followed by trapping (6%) and dipping (2%). However, 66 percent of the livestock rearing households with tsetse flies problems did not use any of the three aforementioned methods.

3.12.7.1 Deworming

Livestock rearing households that dewormed their animals were 6,967 (46% of the total livestock rearing households in the region). The percentage of the households that dewormed cattle was 46 percent, goats (23%), pigs (65%) and sheep (25%) (Chart 3.134).

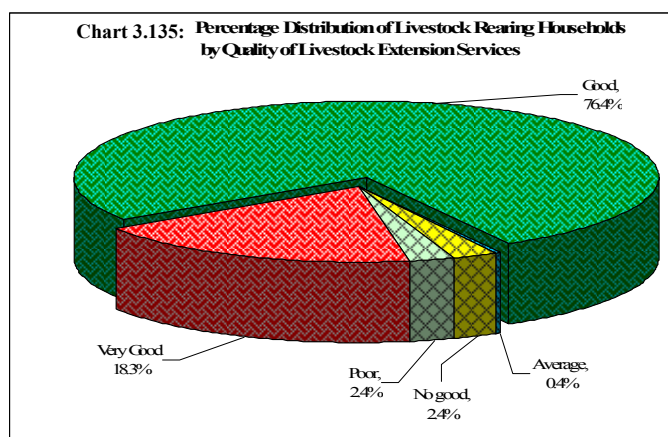


3.4.8 Access to Livestock Services

3.4.8.1 Access to Livestock Extension Services

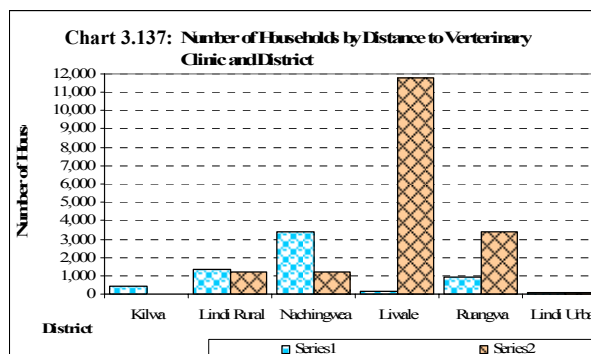
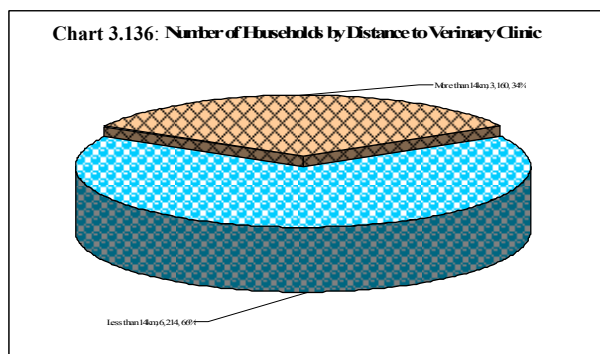
The total number of households that received livestock advice was 5,963, representing 39 percent of the total livestock-rearing households and 0.4 percent of the agricultural households in the region. The main livestock extension agent was the government which provided service to about 92.1 percent of all households receiving livestock extension services. The rest of the households got services from NGOs/development projects (7.9%) (0.3%).

About 64 percent of livestock rearing households described the general quality of livestock extension services as being good, 16 percent said they were average, 15 percent said they were very good and 2 percent described them as poor (Chart 3.135).



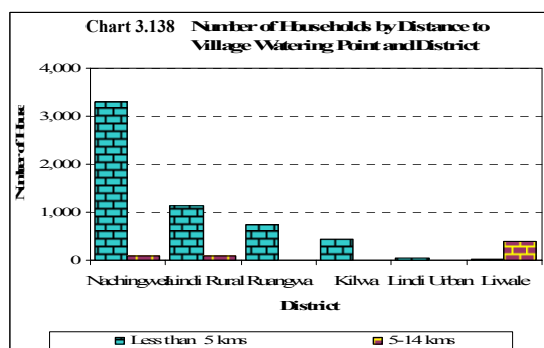
3.4.8.2 Access to Veterinary Clinic

About 66 percent of the livestock rearing households accessed the services within a distance of 14 kms. Only 34 percent of them accessed the services at a distance of more than 14 kms from their dwellings (Chart 3.140). The most affected district was Liwale district with many livestock rearing households accessing the services at a distance of more than 14 kms. Kilwa District was the least affected because all of the households could access the service within a distance of 14 kilometres. (Chart 3.136).

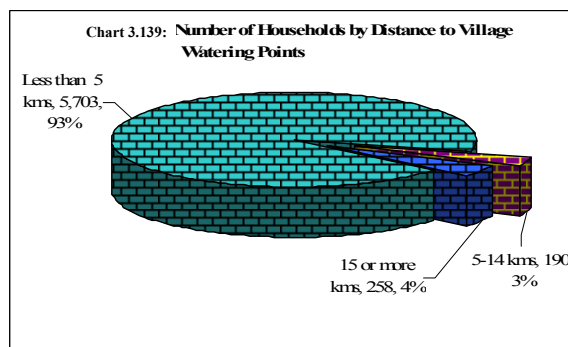


3.4.8.3 Access to Village Watering Points/dam

The number of livestock rearing households residing less than 5 kms from the nearest watering point was 5,703 (97% of livestock rearing households in Lindi region) whilst 190 households (3%) resided at a distance of between 5 and 14 kilometers from the nearest watering point. There were no households traveling 15 kms or more to the nearest watering point in the region. (Chart 3.138).



Nachingwea district had the best livestock water supply with the majority of livestock rearing households residing within 5 kms from the nearest watering point. This was followed by Lindi Rural. In Liwale district, the livestock rearing households had to travel a distance of more than five kilometers to the nearest watering point (Chart 3.139).



3.4.9 Animal Contribution to Crop Production

Animal contribution in crop production in Lindi district was very limited.

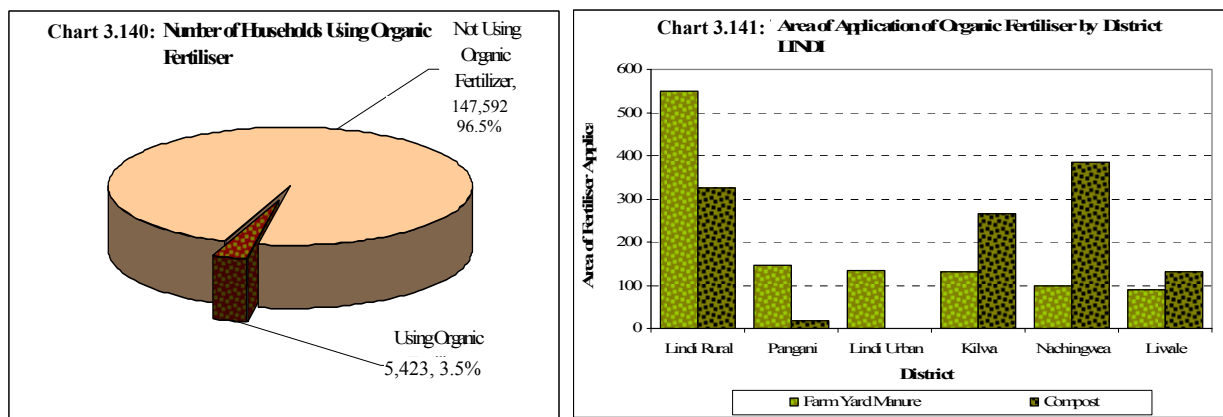
3.4.9.1 Use of Draft Power

Use of draft animals in Lindi was very limited. There were no households that reported using draft animals for cultivation.

The region had no oxen, so hand cultivation was the major method used.

3.4.9.2 Use of Farm Yard Manure

The number of Households using organic fertilizers in Lindi region was 4,746 (3.1% of total crop growing households in the region) (Chart 3.140). The total area applied with organic fertiliser was 5,423 ha of which 2,693 hectares (49.7% of the total area applied with organic fertiliser or 1.4% of the area planted with annual crops and vegetables during the wet season) was applied with farm yard manure (Map 3.59).

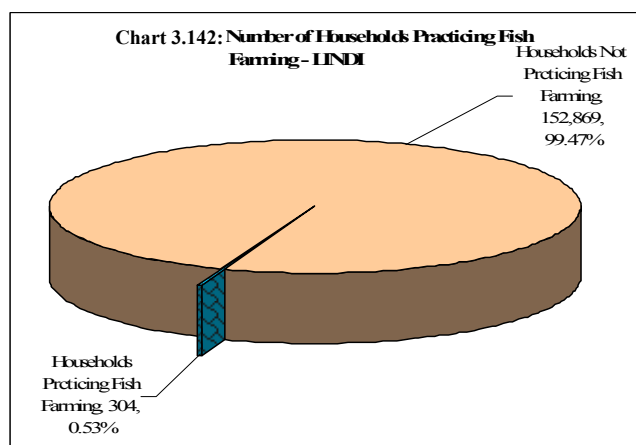


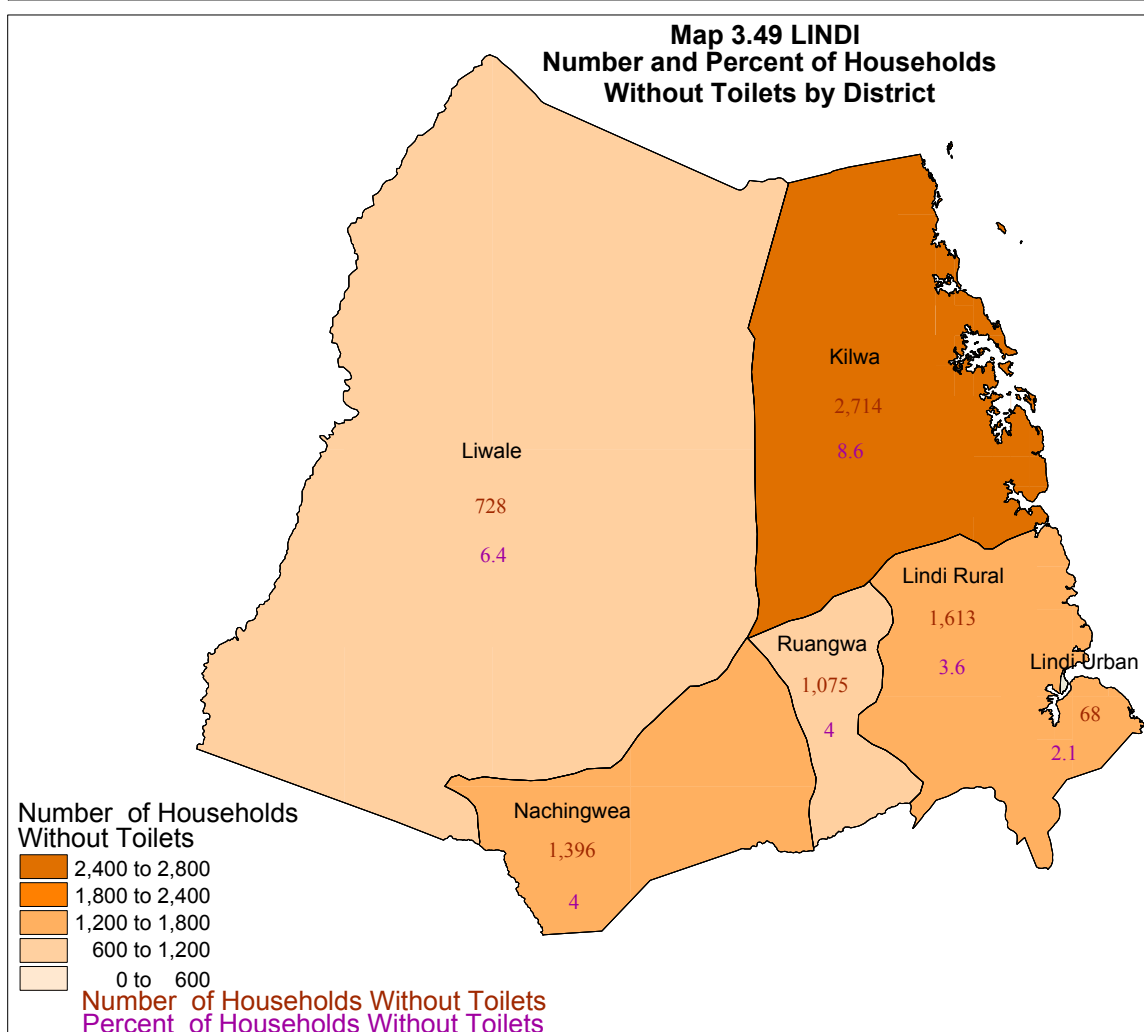
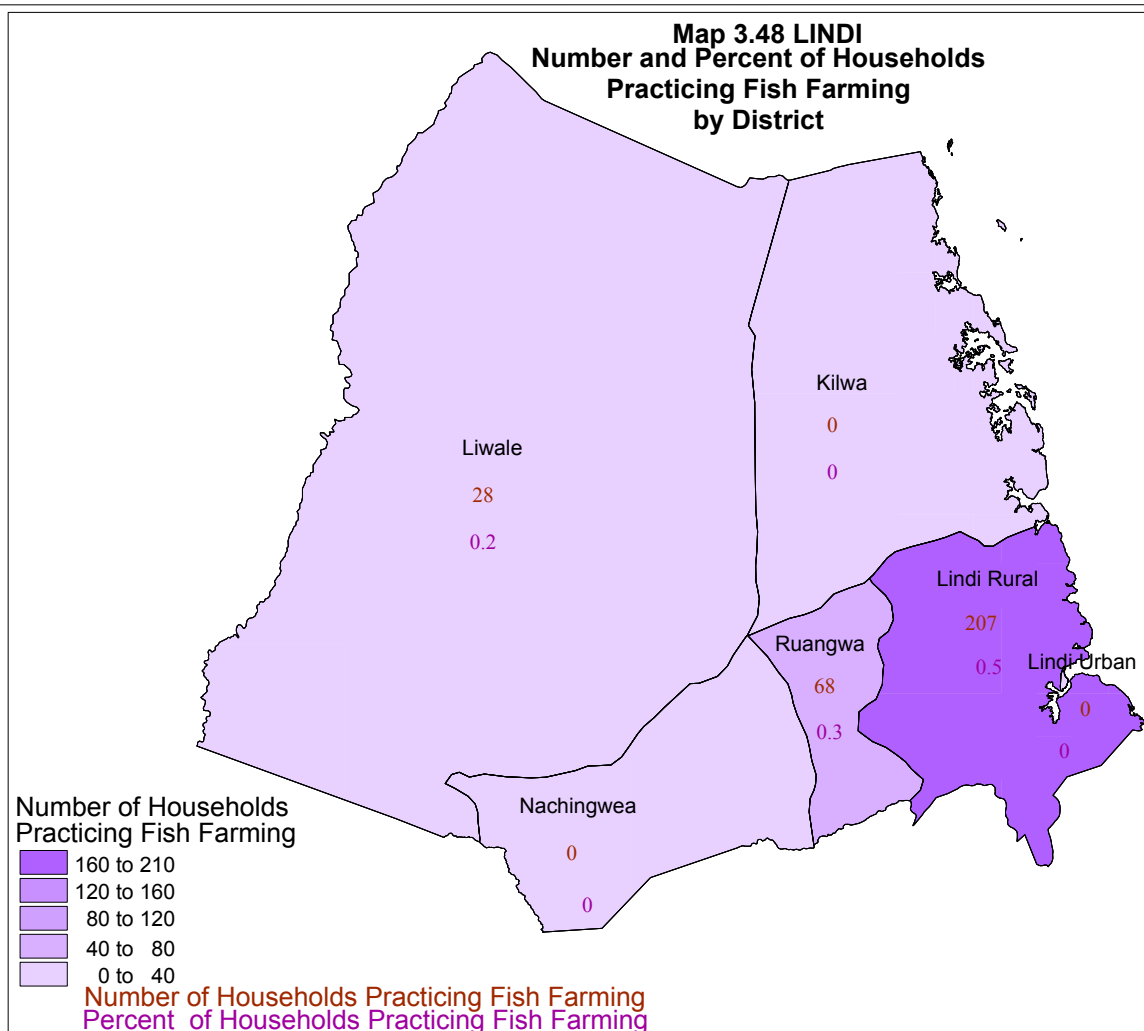
The largest area applied with farm yard manure was found in Lindi Rural district with 549 hectares (50.4% of the total area applied with farm yard manure) followed by Lindi Urban (136 ha, 12.4%), Kilwa (133 ha, 12.2%), Nachingwea (99 ha, 9.1%), Liwale (91, 8.3%) and Ruangwa (83 ha, 7.6%) (Chart 3.141 and Map 3.60).

3.5 Fish Farming

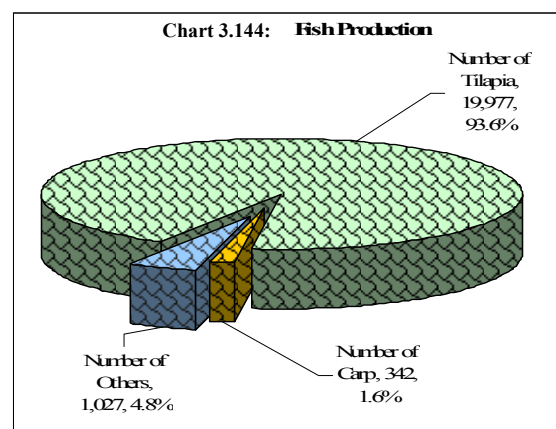
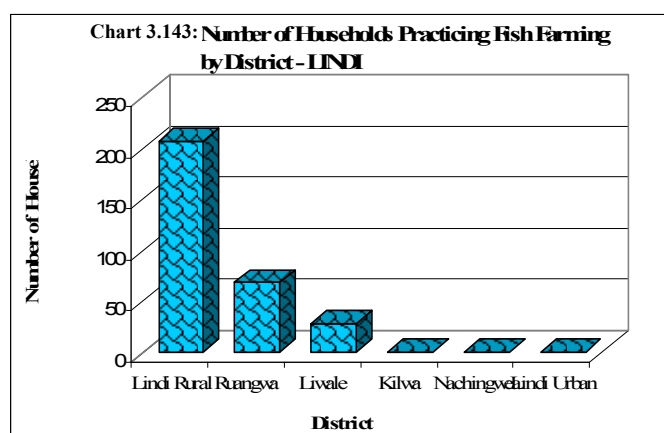
The number of households involved in fish farming in Lindi region was 304, representing 0.2 percent of the total agricultural households in the region (Chart 3.142 and Map 3.61).

Lindi Rural was the leading district with 207 households (0.5% of agricultural households in the district) involved in fish farming. This was followed by Ruangwa (68 households, 0.3%) and Liwale (28 households, 0.2%). Fish farming was not practiced in Nachingwea and Lindi Urban districts (Chart 3.143).





The main source of fingerings was the neighbour who provided fingerings to 51 percent of the fish farming households. About 32 percent of households practicing fish farming got fingerings from governmental institutions and 17 percent got them from own ponds.



Fish farming system was practiced in Lindi Rural, Liwale and Ruangwa districts. Dug-out-pond system were used by 337 (83%) of fish farming households in the region. Natural pond was used by 68 households (17%) fish farming households and in Ruangwa district only. Dug-out ponds were not used in Ruangwa district. The main fish specie planted was Tilapia. The numbers of fish harvested in Lindi region was 21,346, of which 19,977 fish (94%) were tilapia and 342 (2%) were carp. Other types of fish harvested were 1,027 (5 %). (Chart 3.144) About 56 percent of the fish farming households sold their fish to neighbours, 26% did not sell, while 18% sold to large scale farms.

3.6 Access to Infrastructure and Other Services

The results indicate that among the evaluated services, the regional capital was the service located very farthest from most of the household's dwellings. It was located at an average distance of 137.1 kilometers from the agricultural household's dwellings. Other services and their respective average distances in kilometers from the dwellings were tarmac road (56.6), tertiary market (39), hospital (35), secondary school (29), secondary market (25), primary market (11), all weather road (6.4), health clinic (6), primary school (2) and feeder road (1.5) (Table 3.16).

District	Mean Distance to										
	Secondary Schools	Primary Schools	All weather roads	Feeder Roads	Hospitals	Health Clinics	Regional Capital	Primary Markets	Secondary Market	Tertiary Market	Tarmac Road
Kilwa	48.5	2.6	14.0	2.1	62.5	9.5	207.0	29.9	42.6	76.3	54.9
Lindi Rural	32.0	3.0	4.6	1.8	39.0	5.7	51.5	4.9	23.4	39.0	23.5
Nachingwea	14.8	2.0	3.4	0.5	14.0	4.8	158.2	3.0	17.6	24.6	68.2
Liwale	42.1	2.3	12.6	1.0	41.6	8.2	256.6	7.0	22.9	41.9	174.1
Ruangwa	15.3	1.4	2.7	1.5	23.6	4.3	135.2	13.3	17.6	15.4	54.6
Lindi Urban	9.0	3.0	2.2	1.8	10.8	4.4	9.5	4.2	15.6	9.1	8.0
Total	28.7	2.3	6.4	1.5	34.9	6.2	137.1	11.2	24.8	38.7	56.6

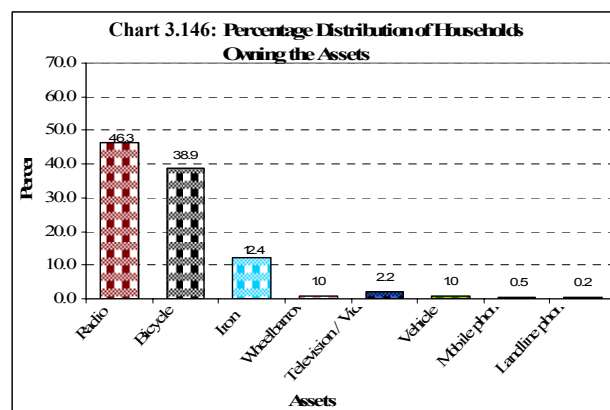
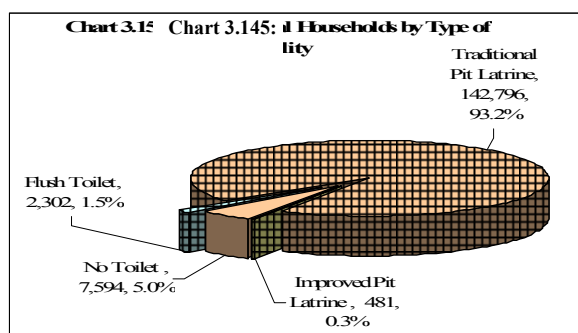
3.7 POVERTY INDICATORS

The agricultural census collected data on poverty for the purpose of providing the basis for tracking progress in poverty reduction strategies undertaken by the government

3.7.1 Type of Toilets

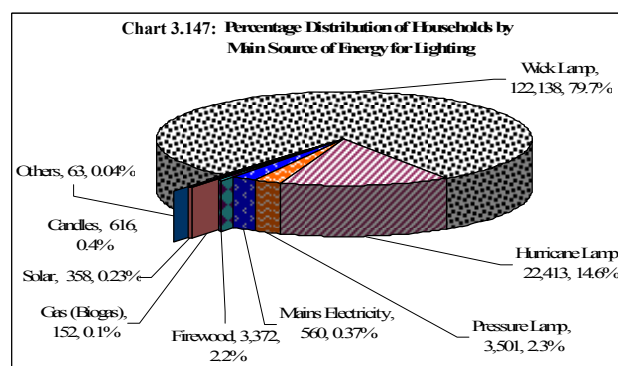
The largest number of rural agricultural households used traditional pit latrines (142,796 households, 93.2% of all rural agricultural households) 2,302 households (1.5%) used flush toilets and 481(0.3%) used improved pit latrine. However, 7,594 households (5% of agricultural households in the region) had no toilet facilities (Chart 3.145).

The distribution of the households without toilets within the region indicates that 36 percent of them were found in Kilwa District. The percentages of households without toilets in other districts were as follows Lindi Rural (21%), Nachingwea (18%), Ruangwa (14%) and Liwale (10%) Map 3.62)



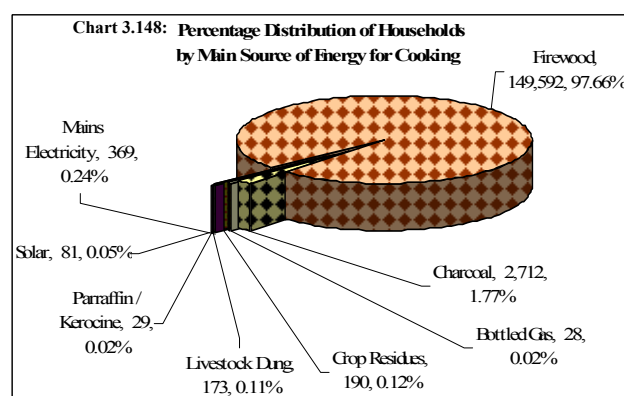
3.7.2 Household's Assets

Most rural agricultural households in Lindi region owned radios. The number owning radios was 70,952 households (46.3% of the agriculture households in the region). They were followed by those owning bicycle (59,535 households, 38.9%), iron (18,981 households, 12.4%), wheelbarrows (1,531 households, 1%), television/video (964 households, 0.6%), vehicle (751 households, 0.5%), mobile phone (693 households, 0.5%), and landline phone (339 households, 0.2%). (Chart 3.146)



3.7.3 Sources of Lighting Energy

Wick lamp was the most common source of lighting energy in the region with 79.7 percent of the total rural agricultural households using this source of energy followed by hurricane lamp (14.6%), pressure lamp (2.3%), firewood (2.2%), candles (0.4%), mains electricity (0.37), solar (0.23%), gas or biogas (0.1%) and other sources (0.04%). (Chart 3.147)



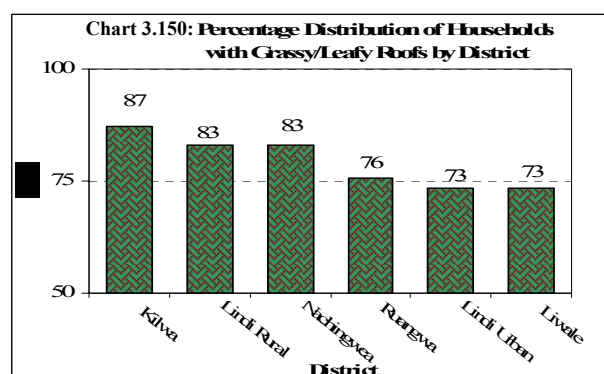
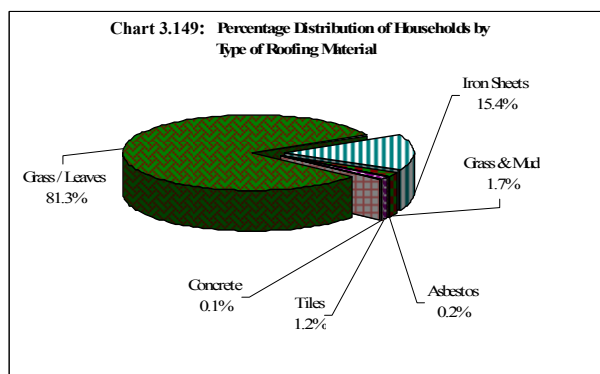
3.7.4 Sources of Energy for Cooking

The most prevalent source of energy for cooking was firewood, which was used by 97.66 percent of all rural agricultural households in Lindi region. This was followed by charcoal (1.77%). The rest of energy sources accounted for 0.57 percent. These were mains electricity (0.24%), crop residues (0.12%), livestock dung (0.01%), solar (0.05%), paraffin/kerosene (0.02%) and bottled gas (0.02%). (Chart 3.154)

3.7.5 Roofing Materials

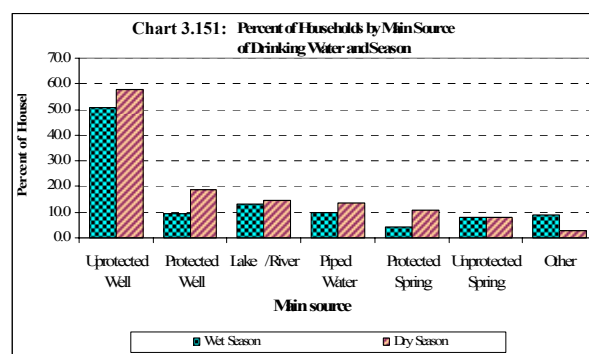
The most common roofing material for the main dwelling was grass and/or leaves and it was used by 81.3 percent of the rural agricultural households. This was followed by iron sheets (15.4%), grass/mud (1.7%), tiles (1.2%), asbestos (0.2%), and concrete (0.1%). (Chart 3.148)

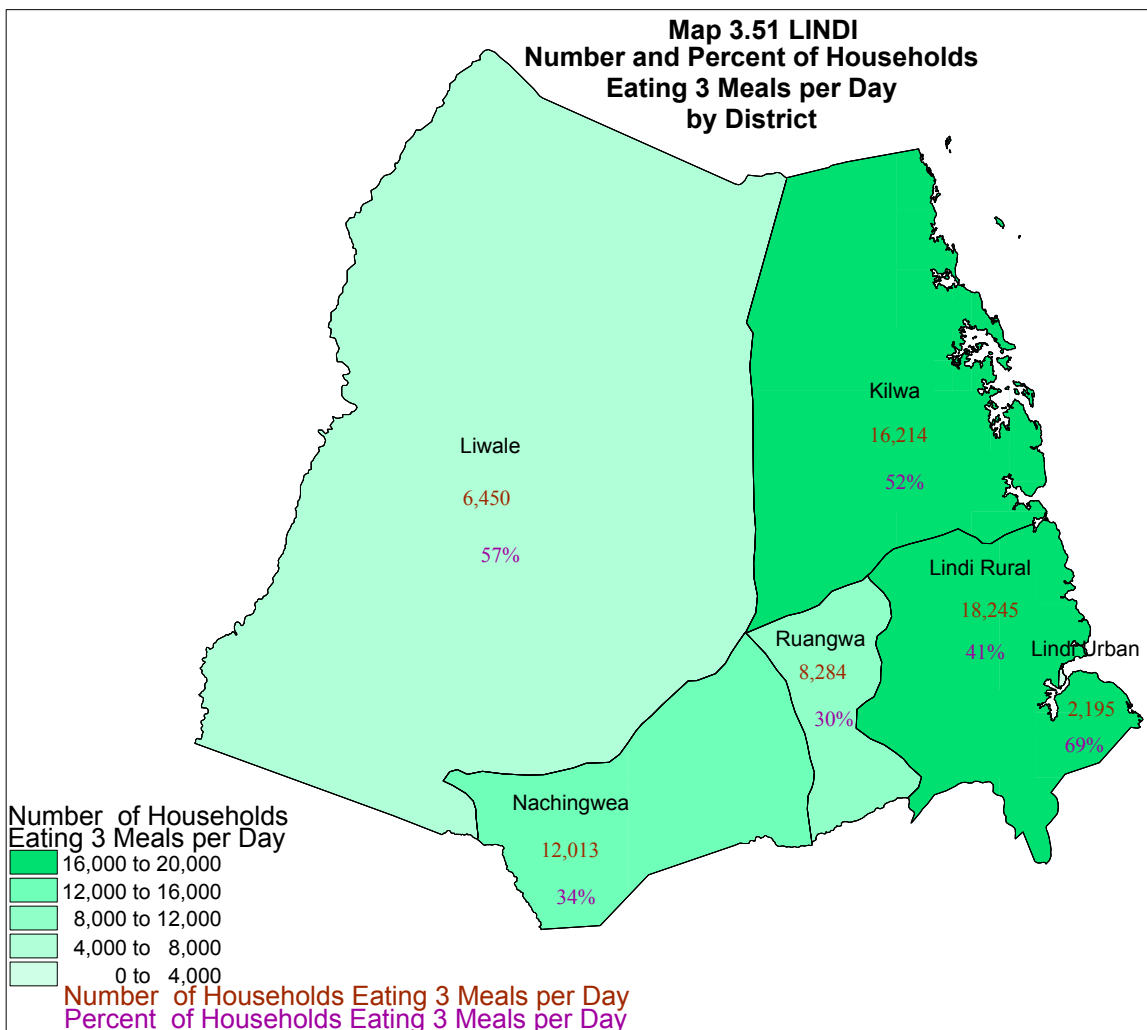
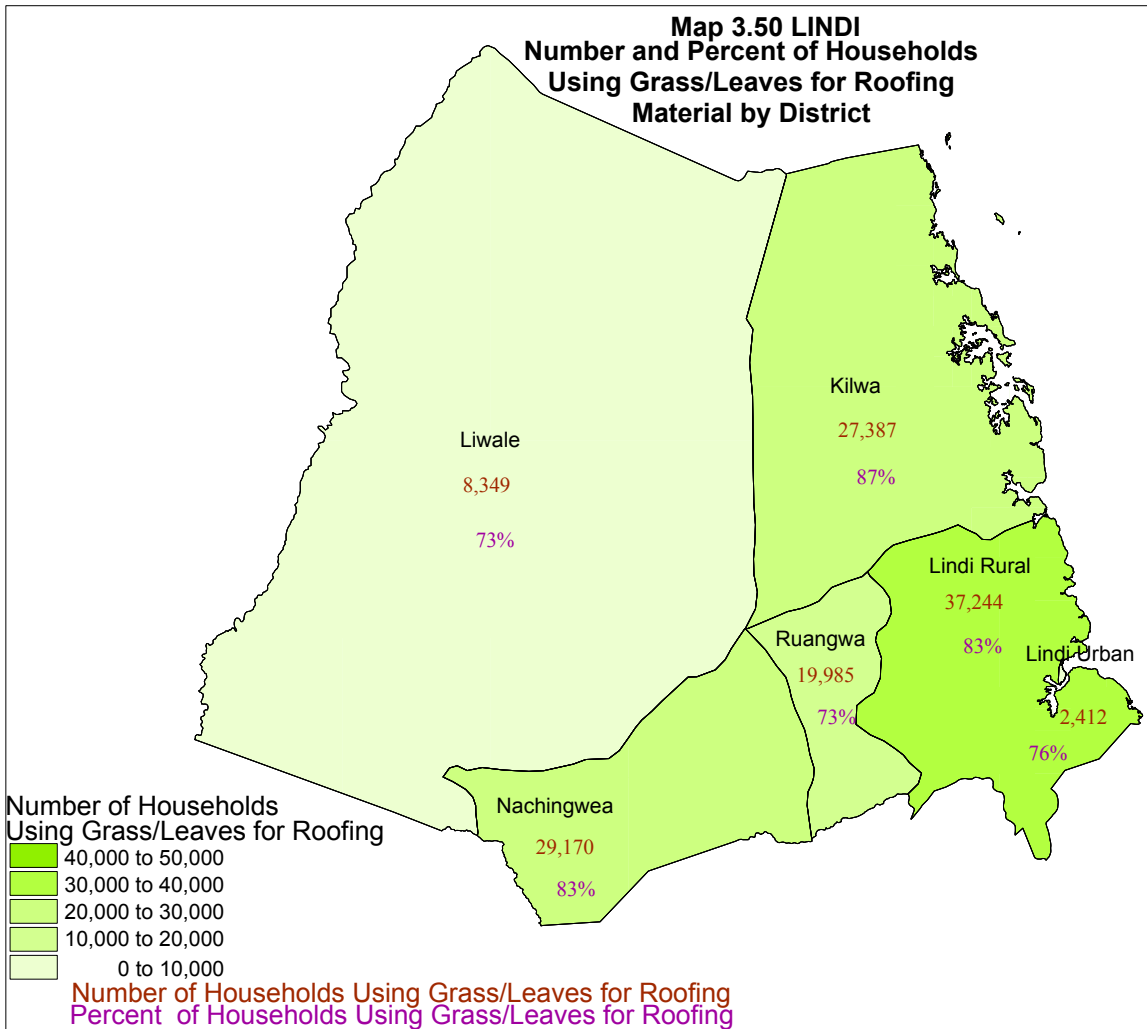
Kilwa district had the highest percentage of households with grass/leaves roofing (87%) followed by Lindi Rural and Nachingwea districts (83%), Ruangwa (76%), Lindi Urban and Liwale (73%). (Chart 3.149 and Map 3.63)

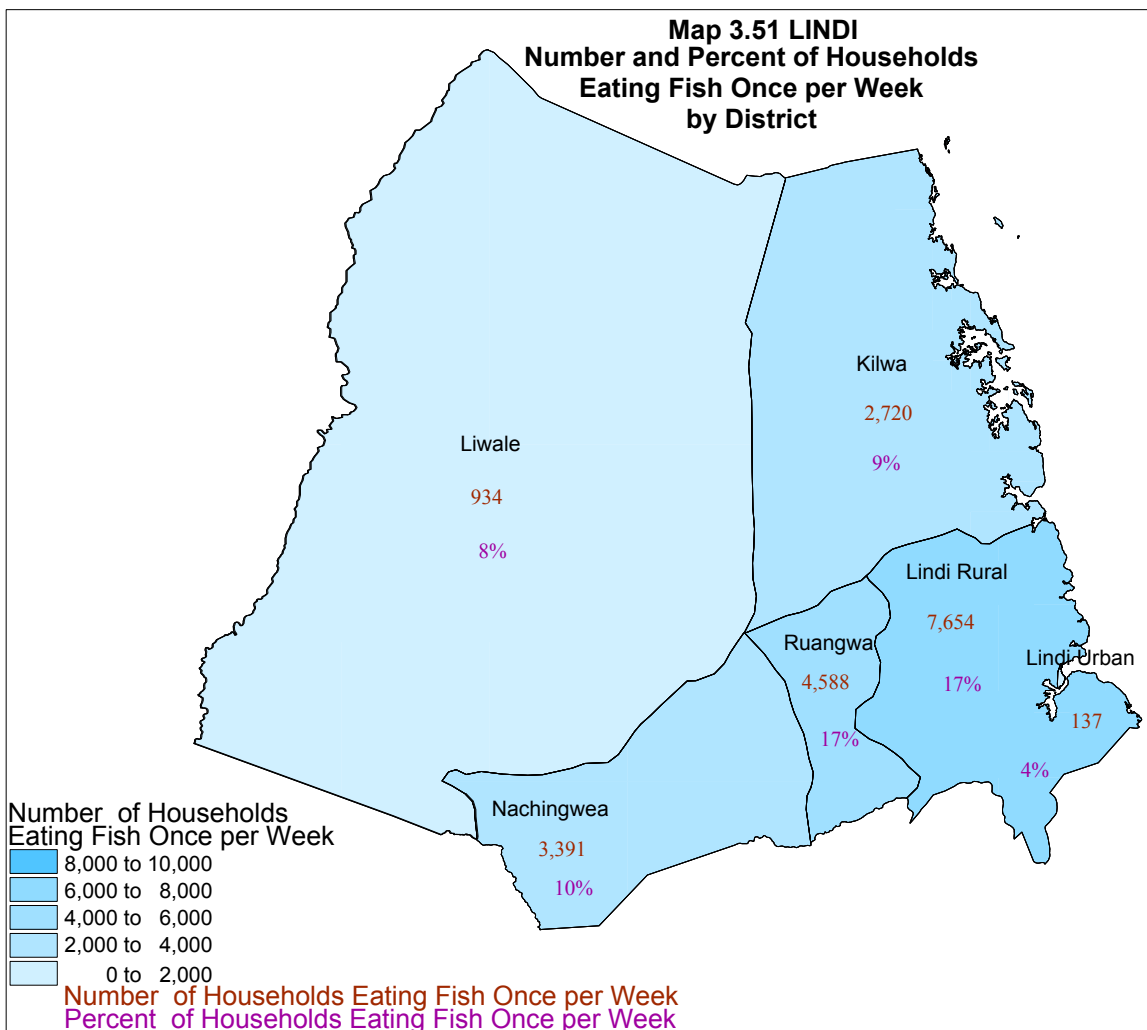
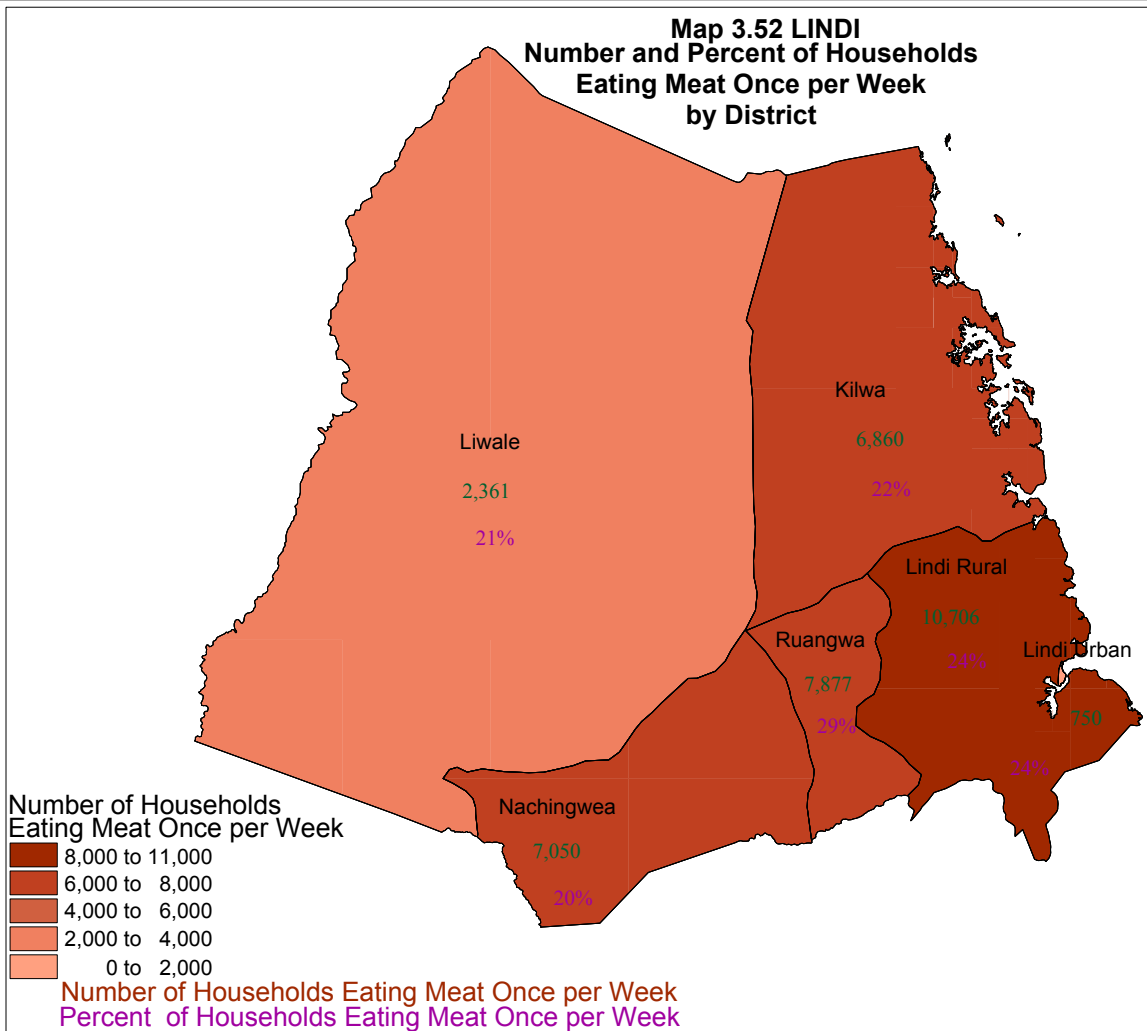


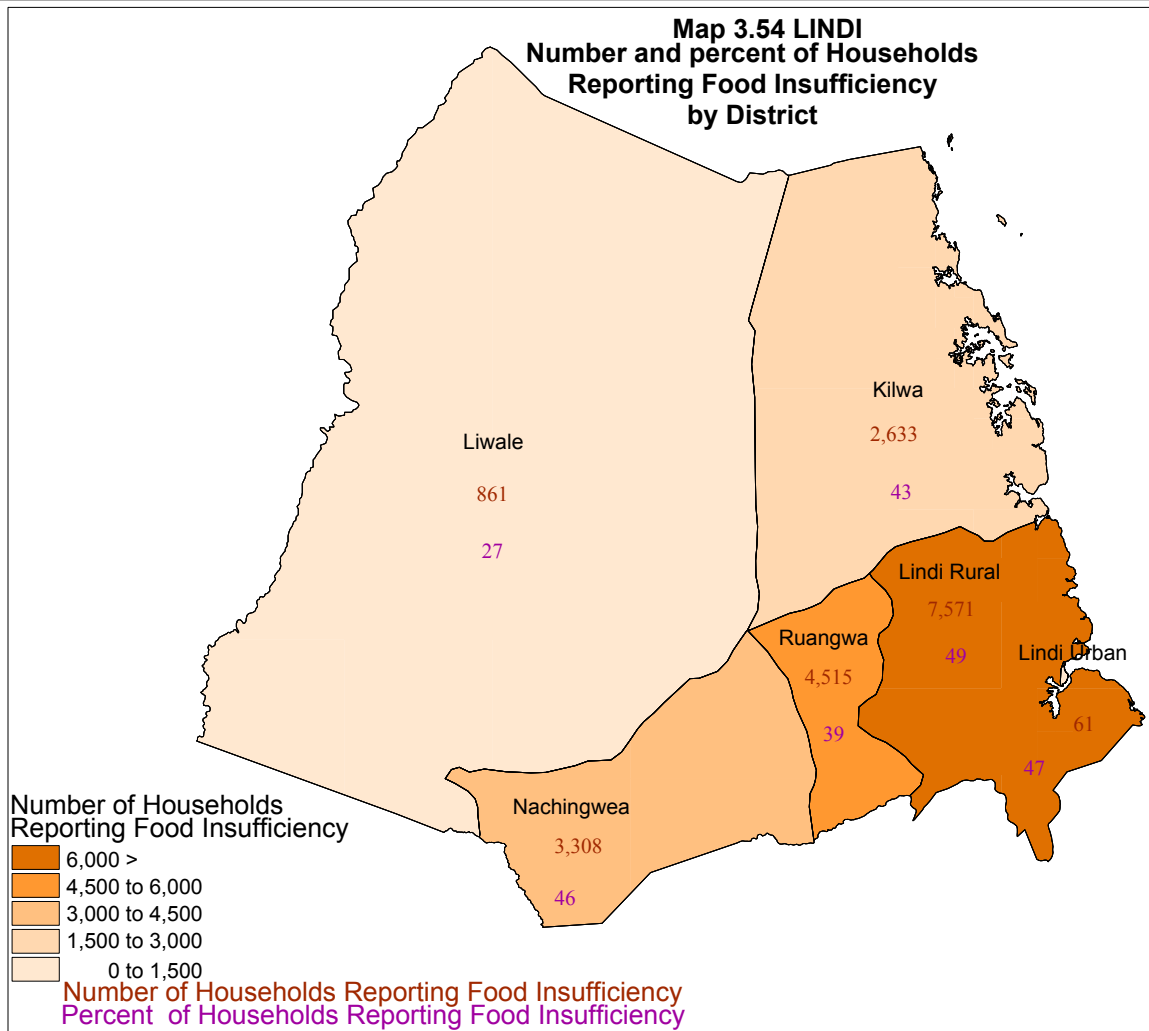
3.7.6 Access to Drinking Water

The main source of drinking water for rural agricultural households in Lindi region was the well (50.5 percent of households used unprotected wells during the wet season and 59.5 percent of the households used them during the dry seasons). This was followed by lake/river (13.3 % of households in the wet season and 14.7 during the dry season), piped water (9.9% of households in the wet season and 13.6% during dry season), unprotected spring (7.8% of households during the wet season and 7.9 % in the dry season), uncovered rainwater catchment (15.1% in the wet season and 1.7 during dry season), protected spring (1.5% of households in the wet season and 1.5% during dry the season), covered rainwater catchment with 1.5 percent of households using the source in the wet season and 0.4 households during the dry season while vendors, truck and other source were used 0.3% of the households during the wet season and 0.8% of the households in the dry season. About 61 percent of the rural agricultural households in Lindi region obtained drinking water within a distance of less than one kilometer during wet season compared to 40 percent of the households during the dry season. However, 38.6 percent of the agricultural households obtained drinking water from a distance of one or more kilometers during wet compared to 59.8 percent of households in the dry season. The most common distance from the source of drinking water was between 500 metres and 2 kms (Chart 3.151).









3.7.7 Food Consumption Pattern

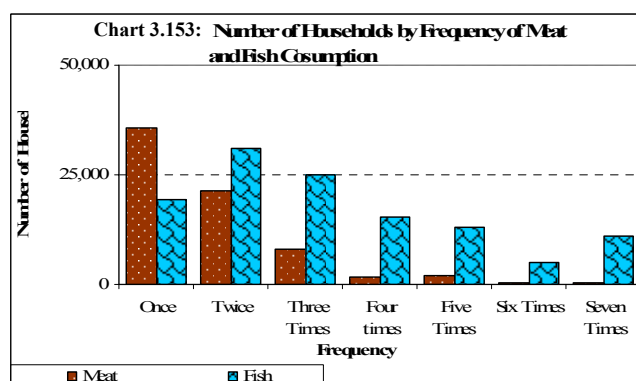
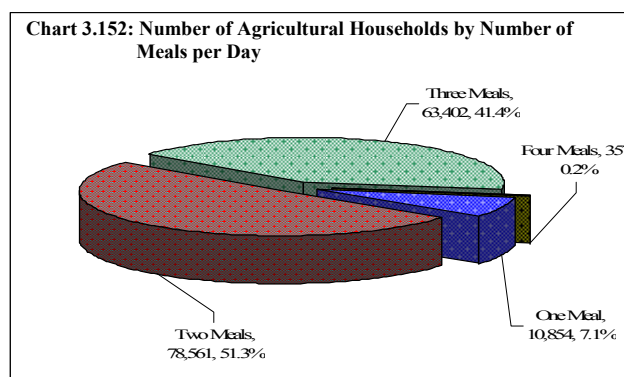
3.7.7.1 Number of Meals per Day

The majority of households in Lindi region normally took 2 meals per day (51.3 percent of the households in the region). This was followed by 3 meals per day (41.4 percent) and 1 meal per day (7.1 percent). Only 0.2 percent of the households had 4 meals per day (Chart 3.152).

Lindi Rural district had the largest percent of households eating one meal per day and had the highest percent of households eating 3 meals per day. (Table 3.17 and Map 3.64)

3.7.7.2 Meat Consumption Frequency

The number of agricultural households that consumed meat during the week preceding the census was 69,263 (45.2% of the agricultural households in Lindi region) with 35,604 households (51.4 % of those who consumed meat) consuming meat only once during the respective week. This was followed by those who had meat twice during the week (30.9%). Very few households had meat three or more times during the respective week. About 54.8 percent of the agricultural households in Lindi region did not eat meat at all during the week preceding the census (Chart 3.153 and Map 3.65).



3.7.7.3 Fish Consumption Frequencies

The number of agricultural households that consumed fish during the week preceding the census was 119,551 (78% of the total agricultural households in Lindi region) with 30,896 households (25.8 % of those who consumed fish) consuming fish twice during the respective week. This was followed by those who had fish three times (20.9%). In general, the percentage of households that consumed fish twice or more during the week in Lindi region was 100,127 (83.8% of the agricultural households that ate fish in the region during the respective period). About 22 percent of the agricultural households in Lindi region did not eat fish at all during the week preceding the census (Chart 3.160 and Map 3.66).

Table 3.17: Number of Households by Number of meals the household normally has per day and District

District	Number of meals per day								Total
	One Meal	%	Two Meals	%	Three Meals	%	Four Meals	%	
Kilwa	2,451	22.6	12,632	16.1	16,214	25.6	81	22.6	31,377
Lindi Rural	4,023	37.1	22,376	28.5	18,245	28.8	209	58.6	44,853
Nachingwea	1,904	17.5	21,249	27.0	12,013	18.9	0	0.0	35,167
Liwale	308	2.8	4,606	5.9	6,450	10.2	0	0.0	11,365
Ruangwa	2,063	19.0	16,808	21.4	8,284	13.1	67	18.8	27,222
Lindi Urban	104	1.0	889	1.1	2,195	3.5	0	0.0	3,189
Total	10,854	100.0	78,561	100.0	63,402	100.0	357	100.0	153,173

3.7.8 Food Security

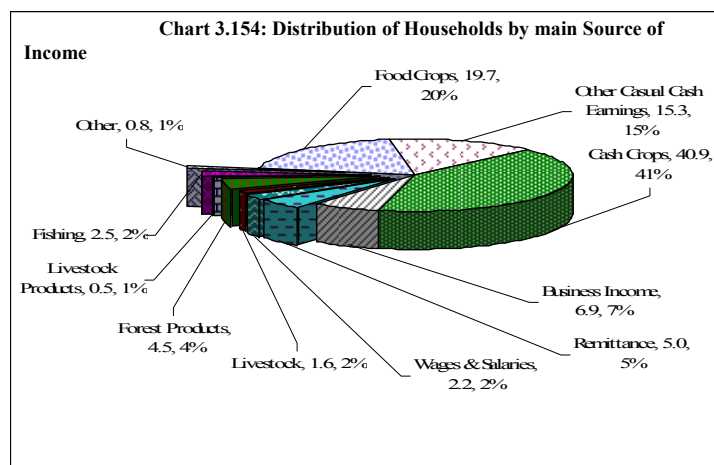
In Lindi region, 50,993 households (33.3% of the total agricultural households in the region) said they rarely experienced problems in satisfying the household food requirement. However 11,975 (7.8%) said they sometimes experience problems, 16.4 often experienced problems and 9.9 percent always had problems in satisfying the household food requirement. About 32.5 percent of the agricultural households said they did not experience any food sufficiency problems (Map 3.67).

3.7.9 Main Sources of Cash Income

The main cash income of the households in Lindi region was from selling cash crops

(40.9 percent of smallholder households), followed by selling of food crops (19.7%), casual labour (15.3%), businesses (6.9%) and cash remittances (5%).forest products (4.5%), fishing (2.5%) and wages/salaries (2.2%).

Only 1.6% of smallholder households reported the selling of livestock as their main source of income, followed by other sources (0.8%) and livestock products (0.5%) (Chart 3.154)



4 LINDI PROFILES

This section presents the status of crops and livestock production, access to natural resources and services, demography and poverty for both the region as a whole and for each district.

4.1 Lindi Region Profile

Lindi has a land area of 272,000 hectares under crop production and has one of the lowest numbers of annual crop growing households in Tanzania. Almost all smallholder households grow crops only and very few of them have livestock. The land area per crop growing household is 1.8 ha and it has a high percent of allocated land that is utilized. The region has a relatively high percent of permanent crops, some of which are in monocrop stands and the remainder in mixed annual/permanent crop. Lindi only has a long rainy season.

Cereal production is relatively unimportant in Lindi and it has one of the lowest planted areas and yields of maize in the country. Small quantities of rice is produced, however it has the sixth largest planted area of sorghum. Lindi also has a moderate production of cassava and its low planted area per household suggests that most households grow small amounts. Beans are not grown in the region and only small amounts of groundnuts and vegetables are grown. Traditional annual cash crops are also not grown.

Lindi has the third largest planted area of cashew nut, coconut and pigeon peas in the country and it has a moderate area under oranges compared to other regions.

Lindi has virtually no planted area under irrigation, however there may have been a small increase in the number of households with irrigation over the period of 10 years.

A relatively high percent of land clearing is done by burning and all cultivation by smallholders in the region is done by hand. No fertilizer or pesticides are applied. Storage of maize is practically zero. Lindi has the highest percent of storage in locally made traditional cribs. Compared to the other regions of Tanzania, the percent of smallholders selling crops in Lindi is average. Most processing of crops is done by hand and almost all the processed products are for home consumption.

Lindi has the lowest contact with extension services in the country. It also has the lowest number of smallholder planted trees and very little erosion control/water harvesting facilities.

4.2 District Profiles

The following district profiles highlights the characteristics of each district and compares them in relation to population, main crops and livestock, production and productivity, access to services and resources and levels of poverty.

4.2.1 Kilwa

Kilwa district had the third largest number of agricultural households in the region and it had the fourth highest percent of households involved in smallholder agriculture in the region. It had the third largest number of smallholders involved in

crop farming only and was the third for smallholders involved in crop and livestock production. It had a very small number of livestock only households and no pastoralists were found in the district.

The most important livelihood activity for smallholder households in Kilwa district was annual crop farming, followed by tree/forestry resources then off farm income. However, the district had the second least percent of households with no off-farm income generating activities and the highest percent of households with two or more household involved in off farm income generating activities. Compared to other districts in the region, Kilwa had a relatively high percent of female headed households (27%) and it had the least average age of the household head. Its average household size of 5 members per household was higher than the average for the region. Kilwa has the second least literacy rate for agricultural household members (57%) and this was reflected by the concomitant relatively low level of school attendance in the region. The literacy rate for the heads of household was the fourth highest in the region.

It had the smallest utilized land area per household and the allocated area was fully utilized indicating a high level of land pressure. The total planted area was the third greatest in the region.

Kilwa was the fourth most important district for maize production in the region with a planted area of 11,056 ha; and the planted area per household was also the fourth largest in the region. Paddy production was very important with a planted area of 5,970 hectares and the production of sorghum was the second highest in the region. Cassava production was the highest and accounted for 34 percent of the total quantity harvested in the region. Sweet potatoes production was also the highest and accounted for 39 percent of the quantity harvested in the region. The district had the second largest planted area of yams (31 ha) and it was among the three districts in the region that grew this crop. Beans were not produced in Kilwa district. Oilseed crops were not important in Kilwa but its production of bambaranuts was the third highest in the region. Vegetable production was less important in the district. It had the least area planted with tomatoes (7 ha) and its contribution to total production was negligible. Production of traditional cash crops was non-existent in the district.

Compared to other districts in the region, Kilwa has a moderate planted area with permanent crops which were dominated by coconut (5,541 ha), cashewnut (5,304 ha) and orange (1,437 ha). Other permanent crops were either not grown or were grown in very small quantities.

As with other districts in the region, most land clearing and preparation was done by hand, however slightly more land preparation was done by tractor and oxen compared to most other districts.

The use of inputs in the region was very small, however district differences existed. Kilwa had the second least area planted with improved seed in Lindi region and this was due to the small planted area of vegetables. The district had the largest planted area applied with fertilizers (farm yard manure, compost and inorganic fertiliser), however most of this was compost. Compared to other districts in the region, Kilwa district had the second highest level of insecticide use. The use of fungicides was the second least in the region. The district had the third least use of herbicide in the region. It also had the third least irrigated area (565 ha). The most common source of water for irrigation was from rivers using gravity. Flood and bucket were the most common means of water application.

The most common method of crop storage was the locally made traditional crib. The proportion of households storing crops in the district was the fourth highest in the region. The district had the third largest number of households selling crops, however for those who did not sell, the main reason for not selling was the low open market price. The least percent of households processing crops in Lindi region was found in Kilwa district, most of the processing was done by hand on farm. The district had the second highest percent of households selling processed crops to neighbours in the region, which was the only main selling point including other unspecified selling points. Although very small, access to credit in the district was to both male and female headed households and the main sources of credits were unspecified.

A comparatively small number of households received extension services in Kilwa and all the service was from the government. The quality of extension services was rated between good and average by the majority of the households.

Tree farming was not important in Kilwa district with zero planted trees. The use of erosion control and water harvesting structures were not found in Kilwa district.

The district had no cattle, sheep or pigs. Goat production was the second largest in the region and had the second largest number of chickens. The district had no layers. The district had moderate numbers of ducks and no donkeys or rabbits. It had the fourth largest number of households that reported tsetse flies problems and the third largest number of households that reported tick problems and it had the least number of households de-worming livestock. The use of draft animals in the district was insignificant while fish farming was not practiced.

It had amongst the best access to primary schools and feeder roads compared to other districts. However, it had one of the worst access to district capital, hospital and tertiary markets.

Kilwa district had the largest percent of households without toilet facilities and it had the third highest percent of households owning bicycles, pressing iron and the second highest percent of household with radio. The district had insignificant percent of household with wheelbarrow, television/video and landline phone. Moreover, there was none in the district with mobile phones and vehicles. It had the second largest number of households using mains electricity in the region. The most common source of energy for lighting was the wick lamp and practically all households used firewood for cooking. The district had small percent of households with grass roofs and moderate percent of households had iron sheet roofs. The most common source of drinking water was the unprotected well. It had the highest percent of households having three meals per day and the lowest percent having two meals per day. The district had the third highest percent of households that did not eat meat and had the highest percent of household that did not eat fish during the week prior to enumeration; however few households seldom had problems with food satisfaction.

4.2.2 Lindi Rural

Lindi Rural district had the largest number of agricultural households in the region and it had the second least percentage of households involved in smallholder agriculture. Most smallholders were involved in crop and livestock production, followed by crops only. It had no households raising livestock only or pastoralists in the district.

The most important livelihood activity for smallholder households in Lindi Rural district was annual crop farming, followed by off farm income. The district had the least percent of households whose members were not involved in off-farm income generating activities and also had the second highest percent of households with two or more members

involved in off-farm income generating activities. Compared to other districts in the region, Lindi Rural had a relatively high percent of female headed households (27%) and it had one of the third highest average age for the household head in the region. Its household size of 4 members per household was average for the region. Lindi Rural had the least literacy rate for agricultural household members and this was reflected by the district having low level of school attendance in the region.

It had a moderate utilized land area per household (1.7ha) and 82 percent of the allocated area was currently being utilised. The district had the largest planted area in the region, and the third least planted area per household (2.1 ha).

The district was moderately important for maize production in the region with a planted area of 14,876 ha, and the planted area per maize growing household was the smallest in the region. Paddy production was important in the district and it had the highest planted area in the region. The district had the largest area planted with sorghum in the region with 10,850 hectares. Cassava production was the highest in the region with a planted area of 12,845 hectares. Sweet potatoes and yams were grown in small quantities while Irish potatoes were not grown in the district. The production of beans in Lindi Rural district was the highest in the region with a planted area of 113ha. Lindi Rural district had the largest groundnut planted area in Lindi region with a planted area per groundnut growing household of 0.4 ha. Vegetable production was moderately important in the district. Although small, it had the largest planted area for tomatoes (158 ha). Traditional cash crops (e.g. tobacco and cotton) were not grown in the district.

Compared to other districts in the region, Lindi Rural had the third largest planted area for permanent crops which were dominated by cashewnut (12,404 ha), coconut (1,756 ha) and pigeon pea (1,217 ha). Other permanent crops were either not grown or were grown in very small quantities.

As with most districts in the region, most land clearing and preparation was done by hand, with the highest amount of land preparation in Lindi Rural district being done by oxen.

The use of inputs in the region was very small, however district differences existed. Lindi Rural district had the fourth largest area planted with improved seeds in the region and had the least proportion of households using improved seeds. The district had the second largest planted area applied with fertilizers (farm yard manure, compost and inorganic fertiliser) and most of these were compost manure. Compared to other districts in the region, Lindi Rural district had the third highest level of insecticide use. The use of fungicides, although small, was also the third highest compared to other districts. Application of herbicides was the second highest. It had the second largest irrigated area (961 ha). The most common source of water for irrigation was from river using gravity. Flood was the major means of water application.

The most common method of crop storage in Lindi Rural district was the locally made traditional crib. The proportion of households storing crops in the district was relatively high. Lindi Rural district was one of the districts with a moderate number of households selling crops, however for those that did not sell; the main reason for not selling was insufficient production. Lindi Rural was among the districts with the highest percent of households processing crops in Lindi region and most of the processing was done by hand on farm.

A comparatively small number of households received extension services in Lindi Rural district and all the services were from the government. The quality of extension services was rated between good and very good by the majority of the households.

Tree farming was not important in Lindi Rural (with 1,097 planted trees) and most of the trees were *Trichilia* species, *Melicia excelsa* and *Eucalyptus* species. The third highest proportion of households with erosion control and water harvesting structures was found in Lindi Rural district and most of these were erosion control bunds.

The district had the largest number of cattle in the region and almost all of them were indigenous. Goat and sheep production were the highest compared to other districts while pig production was not practiced in the district. The district had the largest number of chickens also some ducks and turkeys. Donkeys and rabbits were not found in the district. In Lindi Rural a few households reported tsetse fly problems and many reported tick problems but it had the highest number of households de-worming livestock. The use of draft animals in the district was insignificant. Fish farming was not practiced in the district.

It had amongst the poorest access to secondary schools, hospitals, district capital, regional capital and tertiary market compared to other districts.

The percentage of households without toilet facility in Lindi Rural district was 21 percent and was among the districts with the highest percent of households owning radio. Also, the district had zero percentage of households with vehicles, bicycles, tv/video, land line and mobile phones. It had a small number of households using mains electricity in the region. The most common source of energy for lighting was the wick lamp and practically all households used firewood for cooking. The roofing material for most of the households in the district was grass/leaves (29.9%) followed by iron sheets (29.7%). The most common source of drinking water was the unprotected well water. It was one of the districts with the second highest percent of households having two meals per day. The district had the highest percent of households that did not eat meat and the third highest district that did not eat fish during the week prior to enumeration; however most households seldom had problems with food satisfaction.

4.2.3 Nachingwea

Nachingwea district had the second highest number of agricultural households in the region and it had the second highest percent of households involved in smallholder agriculture in the region. Most smallholders were involved in crop production, followed by crop and livestock. Households involved in livestock only and pastoralists were not found in the district.

The most important livelihood activity for smallholder households in Nachingwea district was annual crop farming, followed by permanent crop farming. However, the district had the fourth highest percent of households with no off-farm income generating activities and also the fourth highest percent of households with two or more members involved in off-farm income generating activities. Compared to other districts in the region, Nachingwea had the fifth highest percent of female headed households (26.5%) and it had one of the highest average ages for the household heads in the region. Its average household size of 4 members per household was average for the region. Nachingwea had the highest literacy rate for agricultural household members and this was reflected by the concomitant relatively high level of school attendance in the region. The literacy rate for the heads of household was the second highest in the region.

It had a slightly higher utilized land area per household (2.3ha) than the regional average of 2.2 ha and 89 percent of the allocated area was currently being utilised. The total planted area was greater than in other districts in the region due to the presence of good wet and dry seasons, however it had moderate planted area per household (2.1ha).

The district was the most important maize producer in the region with a planted area of about 22,714 ha, however the planted area per household at 0.66 ha was the second highest in the region. Paddy was also important in the district with a total planted area of 2,183 ha. The district had the third highest production of sorghum (6,638 ha). Small quantities of sweet potatoes and yams were produced in the district. The district had the second largest planted area of cassava accounting for 26 percent of the cassava planted area in the region with a planted area of 11 ha, the production of beans in Nachingwea was the least among the four districts that produced beans in the region. Oilseed crops were not important in Nachingwea which mainly produced simsim (4,262ha) and groundnuts (1,142ha). Vegetable production was not important in the district. Traditional cash crops (tobacco and cotton) were not grown in the district.

Nachingwea district had the largest percent of the area under permanent crops (28% of the total permanent crop planted area in Lindi region was found in the district). The most prominent permanent crops in the district included cashewnut (13,521 ha) and pigeon pea (9,012 ha). Other permanent crops were either not grown or were grown in very small quantities.

As with other districts in the region, most land clearing and preparation was done by hand.

The use of inputs in the region was very small, however district differences existed. Nachingwea had the second largest area planted with improved seeds in Lindi region and this was due to the dominance of cashewnut crop whose most of the new seedlings came from improved seeds. The district had the second least planted area applied with fertilizers (farm yard manure, compost and inorganic fertiliser), and compost manure was the most common fertilizer used. Compared to other districts in the region, Nachingwea district had the highest area applied with fungicides and the third largest area applied with herbicides. The use of pesticides was relatively moderate. It had the third largest irrigated area (753 ha). The most common source of water for irrigation was from well using hand bucket. Bucket/watering cans was the most common means of water application.

The most common method of crop storage in Nachingwea was the locally made traditional crib; however the proportion of households storing crops in the district was the highest in the region. The district had the second highest percent of households selling crops, however for those that did not sell; the main reason for not selling was insufficient production. Nachingwea district had the second highest percent of households processing crops in the region and most of the processing was done by neighbours machine. However, the district had the third highest percent of households processing crops by trader. The district had the second highest percent of households selling processed crops. Only female households in the district accessed credit.

A comparatively smaller number of households received extension services in Nachingwea district and most of the service were from the government. The quality of extension services was rated between very good and good by the majority of the households.

Tree farming was not important in Nachingwea district with zero planted trees. The highest proportion of households with water harvesting bunds was found in Nachingwea district and it also with the largest number of erosion control bunds.

The district had the third largest number of cattle in the region and most of these were indigenous. Goat and sheep production were the third largest compared to other districts. It had the largest number of pigs in the region and third largest number of chickens. The largest number of layers was found in the district. The district had small number of ducks, turkeys and donkeys however it had no rabbits. A small number of households reported tsetse fly and tick problems. The district had the fourth largest number of households de-worming livestock in Lindi. The use of draft animals in the district was insignificant.

It had amongst the best access to feeder roads, primary schools, and all weather roads compared to other districts. However, it had one of the worst accesses to regional capital, tarmac roads, district capital and tertiary market.

Nachingwea district had the second highest percent of households with no toilet facilities and it had no households owning landline, television/video and vehicle. Small percentage of households had mobile phones and pressing iron. The use of mains electricity in the district was nonexistence. The most common source of energy for lighting was the wick lamp and practically all households used firewood for cooking. The district had high percent of households with grass roofs (83%) with 16 percent of households having iron sheets. The most common source of drinking water was the unprotected well. Twenty seven percent of the households in the district reported having two meals per day and virtually no household reported having more than four meals per day with (19%) of the households having three meals per day. The district had the second highest percent of households that did not eat meat and the third highest percent of household that did not eat fish during the week prior to enumeration; however few households seldom had problems with food satisfaction.

4.2.4 Liwale

Liwale district had the second least number of agricultural households in the region and it had amongst the highest percent of households involved in smallholder agriculture in the region. Most smallholders were involved in crop farming only, followed by crop and livestock production. It had zero number of livestock only and pastoralists in the district.

The most important livelihood activity for smallholder households in Liwale district was annual crop farming, followed by tree/forest resources then permanent crop farming. However, the district had the largest percent of households with no off-farm income generating activities and the fifth largest percent of households with two or more household members involved in off farm income generating activities. Compared to other districts in the region, Liwale had the least percent of female headed households (12.2%) and it had the second lowest average age for the household heads. Its average household size of 5 members per household was higher than the regional average. Liwale had the second highest literacy rate for agricultural household members and this was reflected by the concomitant relatively high level of school attendance in the region. The literacy rate for heads of household was the second highest in the region.

It had the highest utilized land area per household (3.1 ha) and the allocated area was fully utilised indicating a high level of land pressure. The total planted area was greater than in other districts in the region due to the presence of good wet and dry seasons, however it has the second lowest planted area per household (3.4 ha) attributed to the high number of smallholders in the district.

The district was moderately important for maize production in the region with a planted area of over 7,658 ha, however the planted area per household was the highest in the region. Paddy production was not important with a planted area of only 984 hectares and the production of sorghum was moderate (4,273 ha). Liwale was among the districts that did not produce wheat or Irish potatoes. The district was a moderate producer of cassava (4,563 ha). The production of beans in Liwale was small. Oilseed crops were not important in Liwale and simsim was the mostly grown (1,836 ha) followed by groundnuts (699 ha). Vegetable production was not important in the district. The crops grown includes tomatoes (43 ha), okra (72 ha) and onions (31 ha). Traditional cash crops (e.g. tobacco and cotton) were not grown in the district.

Compared to other districts in the region, Liwale had the second smallest area planted with permanent crops which were dominated by cashewnut (10,807 ha) mango (657 ha), coconut (293 ha) and pigeon peas (143 ha). Other permanent crops were either not grown or produced in very small quantities.

As with other districts in the region, most land clearing and preparation was done by hand.

The use of inputs in the region was very small, however district differences existed. Liwale had the third largest area planted with improved seeds in Lindi region. The district had the fourth largest planted area applied with fertilizers (farm yard manure, compost and inorganic fertiliser) and most of these were compost manure. Compared to other districts in the region, Liwale district had low level of insecticides use. The use of fungicides was second highest while the use of herbicides was low compared to other districts. It had the third largest irrigated area in the region (278 ha). The most common source of water for irrigation was from rivers using hand bucket. Bucket /watering can was the most common means of water application.

The most common method of crop storage was the locally made traditional crib while other methods were used by small number of households. The district had the highest percentage of households selling crops, however for those that did not sell, the main reason for not selling was insufficient production. The fourth highest percent of households processing crops in Lindi region was found in Liwale district and most of the processing was done by neighbours machine. The district had a high percent of households selling processed crops to neighbours and no sales were made to traders on farm. Although very small, access to credit in the district was to both male and female headed households and the main sources of credit were religious organisation/NGO/project.

A comparatively large number of households received extension services in Liwale and all the services were from the government. The quality of extension services was rated between good and average by the majority of the households.

Tree farming was important in Liwale (with 142 planted trees) and most of these were Eucalyptus species. The lowest proportion of households with erosion control and water harvesting structures was found in Simanjiro district and most of these were erosion control bunds; however it also has high number vetiver grass.

The district had no cattle more over it had the least number of goats (6,515) in the region and had the fourth largest number of sheep (926). It had no pigs but had the fifth largest number of chickens. Although small, the district had the second largest number of layers in the region. The district had a moderate number of ducks, turkeys and the largest number of donkeys. The district had the second largest number of households reporting tsetse fly and tick problems was in Liwale and

it had the second least percentage of households de-worming livestock. The use of draft animals in the district was nonexistent and fish farming was not practiced

It was amongst the districts with the best access to feeder roads and primary schools compared to other districts. However, it had one of the worst accesses to regional capital, tarmac roads secondary schools, district capital and tertiary market.

Liwale district had the second least percent of households with no toilet facilities and it had the lowest percent of households owning radio, pressing iron and bicycle. It had the third highest number of households using mains electricity in the region. The most common source of energy for lighting was the wick lamp and practically all households used firewood for cooking. The district had amongst the smallest percent of households with grass roofs, with 10 percent of households having iron sheets. The most common source of drinking water was from unprotected well. It had the second least percent of households having two meals per day and also the second lowest percent with 3 meals per day. The district had the second lowest percent of households that did not eat meat and fish during the week prior to enumeration, however very few households seldom had problems with food satisfaction.

4.2.5 Ruangwa

Ruangwa district had the fourth largest number of agricultural households in the region and it had a high percentage of households involved in smallholder agriculture in the region. Most smallholders were involved in crop production only followed by crop and livestock production. It had a very small number of livestock only households and no pastoralists were found in the district.

The most important livelihood activity for smallholder households in Ruangwa district was annual crop farming, followed by tree/forest resources. The district has the second highest percent of households with no off-farm income generating activities and it had the least percent of households with two or more household members involve in off farm income generating activities. Compared to other districts in the region, Ruangwa had the highest percent of female headed households (31%) and it had the second highest average age for the household heads in the region. The average household size of 4 members per household was the same as the average for the region. Ruangwa has a moderate literacy rate among agricultural household members. The literacy rate for the heads of household was the third highest in the region.

It had a moderate utilized land area per household (1.7ha) and 87 percent of the allocated area was currently being utilised. The district had the moderate planted area in the region, and the second least planted area per household (1.9ha).

The district was important for maize production in the region with a planted area of over 14,191 ha, and the planted area per household was the third highest in the region. The district had a small area planted with paddy (297 ha) but the production of sorghum was high (5,108 ha). Cassava production was moderately high, accounting for 13 percent of the quantity harvested in the region. The district had no planted area for Irish potatoes. The production of beans in Ruangwa was low in the region with a planted area of 22 ha. Ruangwa district had the second least area planted with groundnuts in Lindi region and the area planted per groundnut growing household was 0.27 ha. Vegetable production was not important in the district and the vegetables produced were mainly onion (107 ha) and tomatoes (66 ha). The traditional cash crops (e.g. tobacco and cotton) were not grown

Compared to other districts in the region, Ruangwa had the second largest area planted with permanent crops which were dominated by cashewnut (13,403 ha), pigeon peas (3,095 ha), orange (306 ha), banana (139 ha), and coconut (109 ha). Other permanent crops were either not grown or were produced in very small quantities.

As with other districts in the region, most land clearing and preparation was done by hand.

The use of inputs in the region was very small, however district differences existed. Ruangwa had the largest area planted with improved seeds in the region as well as the highest proportion of households using improved seeds. The district had moderate planted area applied fertilizers (farm yard manure, compost and inorganic fertilisers), and most of these were compost manure. Compared to other districts in the region, Ruangwa district had a moderate level of insecticides use. The use of fungicides in the district was low. Though, the use of herbicides was low in the district but it was the highest in the region (569 ha). It had the highest irrigated area (1,272 ha). The most common source of water for irrigation was from well using hand bucket. Bucket/watering can were the most common means of water application.

The most common method of crop storage in Ruangwa district was the sacks/open drum, however the proportion of households not storing crops in the district was relatively low compared to other districts in the region. Ruangwa district was one of the districts with a moderate number of households selling crops, however those that did not sell, the main reason for not selling was insufficient production. Ruangwa had the second highest percent of households processing crops in Lindi region and most of the processing was done by neighbours machine. The district had credit facilities accessed by males only.

A comparatively moderate number of households received extension services in Ruangwa district and mainly all of it was from the government. The quality of extension services was rated between very good and good by the majority of the households.

Tree farming was important in Ruangwa (with 1,252 planted trees) and most of these were Senna species and Azadiracht species. The erosion control and water harvesting structures were not found in Ruangwa district.

The district had no cattle but had the fourth largest number of goats, the second largest number of sheep, the second largest number of pigs and the fourth largest number of chickens. It had the second largest number of ducks and turkeys. Donkeys were not found in the district. A small number of households reported tsetse fly and tick problems and it had the second highest number of households de-worming livestock. A very small number of households practiced fish farming.

It had amongst the best access to primary schools, feeder roads, all weather roads and health clinics compared to other districts. However, it had one of the worst accesses to regional capital and tarmac road.

The percentages of households without toilet facility in Ruangwa district was 14 percent. It was among the districts with the lowest percent of households owning pressing iron, bicycles and radio. It had the largest number of households using mains electricity in the region. The most common source of energy for lighting was the wick lamp and practically all households used firewood for cooking. The roofing material for most of the households in the district was grass/leaves and iron sheets. The most common source of drinking water was the unprotected wells. It was one of the districts with

moderate percent of households having two and one meals per day. The district had moderate percent of households that did not eat meat and fish during the week prior to enumeration, however small number of households seldom had problems with food satisfaction.

4.2.1 Lindi Urban

Lindi Urban district had the least number of agricultural households in the region and it had the second least percent of households involved in smallholder agriculture in the region. Most smallholders were involved in crop and livestock farming, followed by livestock only and crops only. Pastoralists were not found in the district.

The most important livelihood activity for smallholder households in Lindi Urban district was annual crop farming, followed by off farm income and permanent crop farming. The district had the third highest percent of households with no off-farm income generating activities and also the third highest percent of households with two or household members involved in off farm income generating activities. Compared to other districts in the region, Lindi Urban had the second highest percent of female headed households (27.9%) and it had the highest average age for the household heads. Its average household size of 4 members per household was equal to the average for the region. Lindi Urban had a comparatively high literacy rate among smallholder household members and this was reflected by the concomitant relatively high level of school attendance in the region. The literacy rate for the heads of households was the least in the region.

It had moderate utilized land area per household (1.9 ha) and the allocated area was by 83 percent utilized. It had the second largest planted area per household (2.3 ha) in the region.

The district was the least important for maize production in the region with a planted area of about 975 ha; and the planted area per household was the second lowest in the region. Paddy production was not important with a planted area of only 168 hectares and the production of sorghum was the least in the region. Cassava production was small accounting for 2 percent of the quantity harvested in the region. Oilseed crops were not important in Lindi Urban district. Vegetable production was also not important in the district. Traditional cash crops (e.g. tobacco and cotton) were not grown.

Compared to other districts in the region, Lindi Urban had the smallest area planted with permanent crops which were dominated by coconut (680 ha), cashewnut (243 ha) and pigeon peas (39 ha). Other permanent crops were either not grown or small quantities were produced.

As with other districts in the region, most land clearing and preparation was done by hand.

The use of inputs in the region was very small, however district differences existed. Lindi Urban had the least planted area with improved seeds in Lindi region and this was due to the small planted area of vegetables. The district had a small area applied with fertilizers (farm yard manure, compost and inorganic fertilisers), most of which were farm yard manure. Compared to other districts in the region, Lindi urban district had the least level of insecticide use. The use of fungicides was very small as compared to other districts. Virtually no herbicide was used. It had the second least area under irrigation compared to other districts with 383 ha of irrigated land.

The most common method of crop storage was in locally made traditional cribs, however the proportion of households storing crops in the district was lower than in other districts in the region. The district had moderate number of households selling crops, however for those who did not sell, the main reason for not selling was insufficient production. The second least percent of households processing crops in Lindi region were found in Lindi Urban district and the processing was almost all done by hand. There was no household that accessed credit in the district.

A comparatively small number of households receive extension services in Lindi Urban and all the services were from the government. The quality of extension services was rated between very good and good by the majority of the households.

Tree farming is important in Lindi Urban (with 321 planted trees) and was mostly Senna species. The practice of erosion control and water harvesting structures is never done in Lindi Urban.

The district had the second largest number of cattle in the region and they were almost all indigenous. Goat production was small compared to other districts; It had the least population of sheep in the region. Pigs were not found in the district, it had the smallest number of chickens. Although small, the district had the third largest number of layers in the region. The district had the second largest number of ducks and small number of turkeys. The largest numbers of households reporting tsetse fly and tick problems were in Lindi Urban district but it had the second largest number of households de-worming livestock.

It had amongst the best access to feeder roads, all weather roads, primary schools, health clinics and primary market compared to other districts. However, it had the worst access to secondary market.

Lindi urban district had the least percent of households with no toilet facilities and it had the lowest percent of households with landlines, mobile phones, wheel barrow and television/video. It had amongst the lowest number of households using mains electricity in the region. The most common source of energy for lighting was the wick lamp and practically all households used firewood for cooking. The district had the highest percent of households with grass (75.6%) and 23 percent of households having iron sheets. The most common source of drinking water was the unprotected well. It had the highest percent of households having two or one meal per day compared to other districts and the lowest percent with 3 meals per day. The district had the highest percent of households that did not eat meat or fish during the week prior to enumeration; however most households seldom had problems with food satisfaction.

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TYPE OF AGRICULTURE HOUSEHOLD

2.1 TYPE OF AGRICULTURE HOUSEHOLD: Number of Agricultural Households by type of household and District during 2002/03 Agriculture Year

District	Agriculture, Non Agriculture and Urban Households									
	Rural households involved in Agriculture	% of Total rural households	Rural households NOT involved in Agriculture	% of Total Rural households	Total Rural Households	% of Total households	Urban Households	% of Total households	Total Number of Households (from 2002 Pop. Census)	
	Number	%	Number	%	Number	%	Number	%	Number	
Kilwa	31,377	95	1,522	5	32,898	37	56,995	63	89,893	
Lindi Rural	44,853	94	2,913	6	47,766	84	8,797	16	56,563	
Nachingwea	35,167	99	202	1	35,369	70	15,508	30	50,877	
Liwale	11,365	98	199	2	11,564	11	92,719	89	104,283	
Ruangwa	27,222	99	337	1	27,560	37	47,354	63	74,914	
Lindi Urban	3,189	79	839	21	4,028	1	372,502	99	376,530	
Total	153,173	96	6,011	6	159,185	40	593,875	60	753,060	

2.2 TYPE OF AGRICULTURE HOUSEHOLD: Number of Agriculture Households By Type of Holding and District during 2002/03 Agricultural Year

District	Type of Agriculture Household								Total Number of Agriculture Households	Total Number of Households Growing Crops	Total Number of Households Rearing Livestock
	Crops Only		Livestock Only		Crops & Livestock		Total				
	Number of households	%	Number of households	%	Number of households	%	Number of households	%			
Kilwa	28,733	21	68	43	2,576	17	31,377	20	31,309	20	2,644
Lindi Rural	39,049	28	0	0	5,804	39	44,853	29	44,853	29	5,804
Nachingwea	32,468	24	0	0	2,699	18	35,167	23	35,167	23	2,699
Liwale	10,703	8	54	34	608	4	11,365	7	11,310	7	662
Ruangwa	24,669	18	0	0	2,553	17	27,222	18	27,222	18	2,553
Lindi Urban	2,412	2	36	23	741	5	3,189	2	3,153	2	777
Total	138,034	100	159	100	14,981	100	153,173	100	153,015	100	15,139

NUMBER OF AGRICULTURE HOUSEHOLDS

3.0: HOUSEHOLDS DEMOGRAPHICS: Number of Agricultural Households and Average Household Size By Sex of the Head of Household and District, 2002/03 Agricultural Year

District	Male			Female			Total		Average Household Size
	Number	%	Average Household Size	Number	%	Average Household Size	Number	%	
Kilwa	72,176	49	5	76,237	51.4	4	148,413	100	5
Lindi Rural	83,927	46		96,729	53.5		180,656	100	
Nachingwea	66,706	47	5	74,282	52.7	4	140,989	100	5
Liwale	29,023	50	5	29,597	50.5	5	58,620	100	5
Ruangwa	50,073	48	4	54,170	52.0	4	104,243	100	4
Lindi Urban	6,521	48	5	6,959	51.6	4	13,480	100	4
Total	308,426	48	5	337,974	52	4	646,400	100	5

3.1 The Livelihood Activities/Source of Income of the Households Ranked in Order of Importance

District	Annual Crop Farming	Permanent Crop Farming	Livestock Keeping / Herding	Off Farm Income	Remittances	Fishing / Hunting & Gathering	Tree / Forest Resources
Kilwa	1	4	7	3	5	6	2
Lindi Rural	1	4	6	2	5	7	3
Nachingwea	1	2	5	4	6	7	3
Liwale	1	3	5	4	6	7	2
Ruangwa	1	3	5	4	6	7	2
Lindi Urban	1	3	5	2	6	7	4
Total	1	4	5	3	6	7	2

RANK OF IMPORTANCE OF LIVELIHOOD ACTIVITIES

3.1a RANK OF IMPORTANCE OF LIVELIHOOD ACTIVITIES: First Most Importance

District	Annual Crop Farming	Permanent Crop Farming	Livestock Keeping / Herding	Off Farm Income	Remittances	Fishing / Hunting & Gathering	Tree / Forest Resources
Kilwa	8,636	10,673	78	5,846	1,501	2,151	2,221
Lindi Rural	17,923	7,794	1,431	11,386	3,124	1,238	1,523
Nachingwea	9,693	13,301	437	8,511	1,656	85	1,482
Liwale	4,125	4,745	0	1,933	364	0	141
Ruangwa	13,913	6,386	405	4,960	952	66	204
Lindi Urban	257	470	171	1,084	289	510	443
Total	54,548	43,369	2,522	33,721	7,886	4,050	6,014

3.1b RANK OF IMPORTANCE OF LIVELIHOOD ACTIVITIES: Second Most Importance

District	Annual Crop Farming	Permanent Crop Farming	Livestock Keeping / Herding	Off Farm Income	Remittances	Fishing / Hunting & Gathering	Tree / Forest Resources
Kilwa	14,373	4,781	1,050	5,248	641	523	4,774
Lindi Rural	20,390	7,844	1,706	9,675	1,941	998	3,049
Nachingwea	19,648	6,376	2,274	4,081	345	88	2,613
Liwale	5,137	1,709	498	983	255	56	2,863
Ruangwa	11,271	5,136	1,327	3,524	859	0	4,840
Lindi Urban	1,570	464	454	173	136	148	242
Total	72,389	26,309	7,308	23,685	4,177	1,813	18,382

3.1c RANK OF IMPORTANCE OF LIVELIHOOD ACTIVITIES: Third Most Importance

District	Annual Crop Farming	Permanent Crop Farming	Livestock Keeping / Herding	Off Farm Income	Remittances	Fishing / Hunting & Gathering	Tree / Forest Resources
Kilwa	4,527	1,894	1,424	6,744	1,196	556	13,350
Lindi Rural	4,715	4,483	4,295	7,003	2,549	1,251	13,487
Nachingwea	4,694	3,136	7,422	6,968	1,387	0	11,123
Liwale	1,240	615	1,661	1,346	448	142	4,414
Ruangwa	1,562	2,081	3,830	2,605	1,476	0	9,703
Lindi Urban	1,042	525	207	510	328	35	248
Total	17,780	12,735	18,839	25,177	7,384	1,984	52,324

3.1d RANK OF IMPORTANCE OF LIVELIHOOD ACTIVITIES: Fourth Most Importance

District	Annual Crop Farming	Permanent Crop Farming	Livestock Keeping / Herding	Off Farm Income	Remittances	Fishing / Hunting & Gathering	Tree / Forest Resources
Kilwa	1,247	1,784	1,451	3,321	1,425	546	8,545
Lindi Rural	1,423	1,900	3,172	3,961	2,253	203	11,305
Nachingwea	783	2,088	7,052	4,449	1,477	520	11,307
Liwale	478	633	1,347	646	528	226	2,355
Ruangwa	270	2,011	1,875	805	661	0	4,563
Lindi Urban	143	315	244	145	144	69	346
Total	4,345	8,731	15,139	13,328	6,488	1,564	38,422

HOUSEHOLDS DEMOGRAPHICS

3.2 HOUSEHOLDS DEMOGRAPHYS: Number of Agricultural Household Members By Sex and Age Group for the 2002/03 Agricultural Year (row %)

Age Group	Sex					
	Male		Female		Total	
	Number	%	Number	%	Number	%
Less than 4	43,770	51	41,566	49	85,336	100
05 - 09	43,786	49	45,323	51	89,109	100
10 - 14	41,516	50	40,879	50	82,394	100
15 - 19	30,415	49	31,366	51	61,781	100
20 - 24	18,698	36	32,537	64	51,235	100
25 - 29	23,448	47	26,913	53	50,361	100
30 - 34	19,250	44	24,311	56	43,561	100
35 - 39	13,973	45	16,790	55	30,764	100
40 - 44	14,656	46	16,871	54	31,527	100
45 - 49	10,730	49	10,977	51	21,707	100
50 - 54	11,478	46	13,372	54	24,850	100
55 - 59	8,610	52	8,041	48	16,651	100
60 - 64	8,606	47	9,584	53	18,191	100
65 - 69	7,142	50	7,047	50	14,189	100
70 - 74	5,861	47	6,541	53	12,402	100
75 - 79	2,900	54	2,506	46	5,407	100
80 - 84	2,240	52	2,043	48	4,283	100
Above 85	1,346	51	1,305	49	2,651	100
Total	308,426	48	337,974	52	646,400	100

3.3 HOUSEHOLDS DEMOGRAPHYS: Number of Agricultural Household Members By Sex and Age Group for the 2002/03 Agricultural Year (column %)

Age Group	Sex					
	Male		Female		Total	
	Number	%	Number	%	Number	%
Less than 4	43,770	14	41,566	12	85,336	13
05 - 09	43,786	14	45,323	13	89,109	14
10 - 14	41,516	13	40,879	12	82,394	13
15 - 19	30,415	10	31,366	9	61,781	10
20 - 24	18,698	6	32,537	10	51,235	8
25 - 29	23,448	8	26,913	8	50,361	8
30 - 34	19,250	6	24,311	7	43,561	7
35 - 39	13,973	5	16,790	5	30,764	5
40 - 44	14,656	5	16,871	5	31,527	5
45 - 49	10,730	3	10,977	3	21,707	3
50 - 54	11,478	4	13,372	4	24,850	4
55 - 59	8,610	3	8,041	2	16,651	3
60 - 64	8,606	3	9,584	3	18,191	3
65 - 69	7,142	2	7,047	2	14,189	2
70 - 74	5,861	2	6,541	2	12,402	2
75 - 79	2,900	1	2,506	1	5,407	1
80 - 84	2,240	1	2,043	1	4,283	1
Above 85	1,346	0	1,305	0	2,651	0
Total	308,426	100	337,974	100	646,400	100

3.4 HOUSEHOLDS DEMOGRAPHYS: Number of Agricultural Household Members by Sex and District for the 2002/03 Agricultural Year

District	Sex					
	Male		Female		Total	
	Number	%	Number	%	Number	%
Kilwa	72,176	49	76,237	51	148,413	100
Lindi Rural	83,927	46	96,729	54	180,656	100
Nachingwea	66,706	47	74,282	53	140,989	100
Liwale	29,023	50	29,597	50	58,620	100
Ruangwa	50,073	48	54,170	52	104,243	100
Lindi Urban	6,521	48	6,959	52	13,480	100
Total	308,426	48	337,974	52	646,400	100

3.5 HOUSEHOLDS DEMOGRAPHYS: Number of Agriculture Household Members 5 years and above Who Can Read and Write Languages by Type of Language and District, 2002/03 Agricultural Year

District	Read & Write									
	Swahili		Swahili & English		Any Other Language		Don't Read / Write		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%
Kilwa	69,323	55	2,064	2	377	0	54,158	43	125,922	100
Lindi Rural	82,852	53	1,934	1	203	0	71,703	46	156,692	100
Nachingwea	80,021	65	2,276	2	0	0	41,708	34	124,005	100
Liwale	30,130	61	753	2	0	0	18,527	37	49,411	100
Ruangwa	52,703	57	1,861	2	137	0	38,478	41	93,178	100
Lindi Urban	6,659	56	821	7	69	1	4,307	36	11,856	100
Total	321,687	57	9,709	2	786	0	228,881	41	561,064	100

3.6 HOUSEHOLDS DEMOGRAPHYS: Number of Agricultural Household Members 5 years and above By School Attendance and District , 2002/03 Agricultural Year

District	School Attendance							
	Attending School		Completed		Never Attended to School		Total	
	Number	%	Number	%	Number	%	Number	%
Kilwa	33,457	27	43,394	34	49,071	39	125,922	100
Lindi Rural	31,146	20	60,413	39	65,133	42	156,692	100
Nachingwea	31,485	25	58,210	47	34,311	28	124,005	100
Liwale	13,308	27	20,536	42	15,567	32	49,411	100
Ruangwa	20,167	22	38,164	41	34,846	37	93,178	100
Lindi Urban	3,336	28	4,513	38	4,006	34	11,856	100
Total	132,899	24	225,230	40	202,935	36	561,064	100

3.7 HOUSEHOLDS DEMOGRAPHYS: Number of Agricultural Household Members by Main Activity and District, 2002/03 Agricultural Year

District	Main Activity									
	Crop/Seaweed Farming		Livestock Keeping / Herding		Livestock Pastoralist		Fishing		Government / Parastatal	
	Number	%	Number	%	Number	%	Number	%	Number	%
Kilwa	61,479	49	68	0	78	0	2,684	2	845	1
Lindi Rural	88,683	57	1,327	1	0	0	1,744	1	807	1
Nachingwea	73,609	59	0	0	0	0	0	0	696	1
Liwale	27,690	56	0	0	0	0	0	0	388	1
Ruangwa	55,400	59	68	0	0	0	0	0	197	0
Lindi Urban	4,221	36	246	2	0	0	820	7	215	2
Total	311,082	55	1,708	0	78	0	5,248	1	3,149	1

cont... Number of Agricultural Household Members By Main Activity and District, 2002/03
Agricultural Year

District	Main Activity									
	Private - NGO / Mission / etc		Self Employed (Non Farming) with Employees		Self Employed (Non Farming) without Employees		Unpaid Family Helper (Non Agriculture)		Not Working & Available	
	Number	%	Number	%	Number	%	Number	%	Number	%
Kilwa	453	0	545	0	6,370	5	2,274	2	297	0
Lindi Rural	920	1	1,422	1	9,935	6	2,543	2	1,139	1
Nachingwea	2,182	2	176	0	2,687	2	523	0	346	0
Liwale	138	0	240	0	976	2	0	0	80	0
Ruangwa	337	0	67	0	4,623	5	1,407	2	472	1
Lindi Urban	318	3	35	0	1,424	12	106	1	103	1
Total	4,348	1	2,484	0	26,014	5	6,852	1	2,437	0

cont... Number of Agricultural Household Members By Main Activity and District, 2002/03

District	Main Activity											
	Not Working & Unavailable		Housemaker / Housewife		Student		Work / Too Old / Retired / Sick /		Other		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Kilwa	315	0	861	1	31,824	25	12,747	10	5,082	4	125,922	100
Lindi Rural	615	0	717	0	29,113	19	12,050	8	5,676	4	156,692	100
Nachingwea	784	1	434	0	30,715	25	7,675	6	4,179	3	124,005	100
Liwale	83	0	111	0	12,891	26	5,885	12	930	2	49,411	100
Ruangwa	548	1	268	0	18,813	20	9,675	10	1,303	1	93,178	100
Lindi Urban	35	0	72	1	3,198	27	823	7	242	2	11,856	100
Total	2,378	0	2,463	0	126,553	23	48,856	9	17,413	3	561,064	100

3.8 HOUSEHOLDS DEMOGRAPHYS: Number of Agricultural Household Members By Level of involvement in Farming Activity and District, 2002/03 Agricultural Year

District	Involvement in Farming									
	Works Full-time on Farm		Works Part-time on Farm		Rarely Works on Farm		Never Works on Farm		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%
Kilwa	60,968	48	6,133	5	26,315	21	32,506	26	125,922	100
Lindi Rural	85,724	55	8,520	5	22,624	14	39,824	25	156,692	100
Nachingwea	71,596	58	4,779	4	17,520	14	30,111	24	124,005	100
Liwale	27,377	55	1,354	3	5,144	10	15,536	31	49,411	100
Ruangwa	54,434	58	2,422	3	9,697	10	26,626	29	93,178	100
Lindi Urban	4,291	36	995	8	2,081	18	4,488	38	11,856	100
Total	304,391	54	24,202	4	83,381	15	149,091	27	561,064	100

3.9 HOUSEHOLDS DEMOGRAPHYS: Number of Agricultural Household Members By Level of Formal Education Completion and District, 2002/03 Agricultural Year

District	Education Level									
	Under Standard One		Standard One		Standard Two		Standard Three		Standard Four	
	Number	%	Number	%	Number	%	Number	%	Number	%
Kilwa	633	1	311	1	1240	3	1652	4	4319	10
Lindi Rur	691	1	599	1	1419	2	3548	6	8282	14
Nachingwea	88	0	350	1	1481	3	1922	3	10545	18
Liwale	194	1	85	0	420	2	481	2	1925	9
Ruangwa	743	2	134	0	1806	5	1283	3	6702	18
Lindi Urb	38	1	0	0	207	5	388	9	689	15
Total	2388	1	1480	1	6574	3	9274	4	32462	14

cont... HOUSEHOLDS DEMOGRAPHYS: Number of Agricultural Household Members By Level of Formal Education Completion and District, 2002/03 Agricultural Year

District	Education Level									
	Standard Five		Standard Six		Education		Pre Form One		Form One	
	Number	%	Number	%	Number	%	Number	%	Number	%
Kilwa	958	2	1026	2	237	1	78	0	81	0
Lindi Rural	2142	4	1491	2	205	0	100	0	103	0
Nachingwea	1043	2	2429	4	347	1	87	0	0	0
Liwale	478	2	610	3	57	0	54	0	0	0
Ruangwa	814	2	1010	3	69	0	63	0	269	1
Lindi Urban	36	1	0	0	36	1	75	2	0	0
Total	5471	2	6565	3	951	0	457	0	452	0

cont... HOUSEHOLDS DEMOGRAPHYS: Number of Agricultural Household Members By Level of Formal Education Completion and District, 2002/03 Agricultural Year

District	Education Level									
	Form Two		Form Three		Form Four		Form Six		Training After Secondary Education	
	Number	%	Number	%	Number	%	Number	%	Number	%
Kilwa	71	0	0	0	542	1	0	0	151	0
Lindi Rural	86	0	0	0	1,213	2	0	0	0	0
Nachingwea	436	1	346	1	875	2	0	0	0	0
Liwale	134	1	26	0	336	2	28	0	0	0
Ruangwa	202	1	67	0	330	1	0	0	0	0
Lindi Urban	35	1	0	0	71	2	0	0	108	2
Total	964	0	438	0	3,367	1	28	0	259	0

cont... HOUSEHOLDS DEMOGRAPHYS: Number of Agricultural Household Members By Level of Formal Education Completion and District, 2002/03 Agricultural Year

District	Education Level					
	University & Other		Adult Education		Total	
	Number	%	Number	%	Number	%
Kilwa	0	0	1,358	3	43,394	100
Lindi Rural	0	0	3,587	6	60,413	100
Nachingwea	0	0	0	0	58,210	100
Liwale	0	0	960	5	20,536	100
Ruangwa	0	0	200	1	38,164	100
Lindi Urban	37	1	244	5	4,513	100
Total	37	0	6,349	3	225,230	100

3.10 HOUSEHOLDS DEMOGRAPHYS: Number of Agricultural Households and Average Household Size By Sex of the Head of Household and District, 2002/03 Agricultural Year

District	Male			Female			Total		Average Household Size
	Number	%	Average Household Size	Number	%	Average Household Size	Number	%	
Kilwa	113,025	22,835	5	35,388	8,542	4	148,413	31,377	5
Lindi Rural	138,207	32,758	4	42,448	12,096	4	180,656	44,853	4
Nachingwea	108,868	25,859	4	32,121	9,308	3	140,989	35,167	4
Liwale	52,460	9,974	5	6,160	1,390	4	58,620	11,365	5
Ruangwa	76,847	18,893	4	27,396	8,329	3	104,243	27,222	4
Lindi Urban	10,311	2,298	4	3,169	891	4	13,480	3,189	4
Total	499,718	112,618	4	146,682	40,555	4	646,400	153,173	4

3.11 HOUSEHOLD DEMOGRAPHYS: Number of Agricultural Households By Number of Household Members with Off-farm Income Generating Activities and District, 2002/03 Agricultural Year

District	Number of household members with Off farm income							
	One		Two		More than Two		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Kilwa	15,015	62	6,370	26	2,944	12	24,330	100
Lindi Rural	25,507	66	9,060	24	3,924	10	38,492	100
Nachingwea	20,357	76	4,520	17	1,748	7	26,625	100
Liwale	4,528	81	784	14	251	5	5,564	100
Ruangwa	12,361	88	1,525	11	199	1	14,084	100
Lindi Urban	1,443	68	413	19	279	13	2,134	100
Total	79,211	71	22,672	20	9,345	8	111,228	100

3.12 HOUSEHOLDS DEMOGRAPHYS: Number of Heads of Agricultural Households By Maximum Education Level Attained and District, 2002/03 Agricultural Year

District	Maximum Education Level Attained							
	No Education	Primary Education	Post Primary Education	Secondary Education	Post Secondary Education	University & Equivalent Education	Adult Education	Total
Kilwa	11,990	17,886	75	348	151	0	928	31,377
Lindi Rural	17,876	23,507	102	706	0	0	2,662	44,853
Nachingwea	8,783	25,428	347	523	0	0	86	35,167
Liwale	2,805	7,461	28	366	0	0	705	11,365
Ruangwa	10,102	16,651	0	332	0	0	137	27,222
Lindi Urban	1,487	1,375	0	75	73	37	142	3,189
Total	53,043	92,308	553	2,349	224	37	4,660	153,173

3.13 HOUSEHOLDS DEMOGRAPHYS: Mean, Median, Mode of Age of Head of Agricultural Household and District

District	Male			Female			Total		
	Mean	Median	Mode	Mean	Median	Mode	Mean	Median	Mode
Kilwa	43	40	30	44	43	40	43.3	41	30
Lindi Rural	45	42	45	51	51	50	46.7	45	70
Nachingwea	44	42	26	48	46	32	45.2	42	26
Liwale	43	41	30	46	43	30	43.4	41	30
Ruangwa	46	44	40	49	48	65	47.1	45	40
Lindi Urban	49	46	30	52	52	60	49.7	48	60
Total	45	42	45	48	48	50	45.6	43	40

Type of Holding	NCSA 1994/95	EAS 1995/96	EAS 1996/97	IAS 1997/98	DIAS 1998/99	NCSA 2002/03
Male Heads	103,809	107,835	110,612	111,617	121,669	308,426
Female Heads	25,780	35,328	42,122	46,166	32,649	337,974
Total	129,589	143,163	152,734	157,783	154,318	646,400
Male headed (Percentage)	80	75	72	71	79	48
Female headed (Percentage)	20	25	28	29	21	52
Total	100	100	100	100	100	100

3.15 Literacy Rate of Heads of Households by Sex and District

District	Literacy								
	Know			Don't know			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Kilwa	45,889	5,996	51,885	19,635	13,236	32,871	65,524	19,233	84,756
Lindi Rur									
Nachingwea	31,362	3,876	35,237	10,042	5,775	15,817	41,404	9,651	51,055
Liwale	27,776	3,738	31,515	11,772	3,951	15,724	39,549	7,689	47,238
Ruangwa	48,267	10,969	59,236	29,081	12,164	41,245	77,348	23,134	100,482
Lindi Urb	19,214	4,087	23,300	10,528	6,360	16,889	29,742	10,447	40,189
Total	172,507	28,666	201,173	81,058	41,487	122,546	253,566	70,153	323,719

LAND ACCESS/OWNERSHIP

4.1 LAND ACCESS/OWNERSHIP: Number of Farming Households by Type of Land Ownership/Tenure and District for the 2002/03 Agricultural Year

District	Land Access												Total Number of Households
	Leased/Certificate of Ownership		Owned under Customary Law		Bought		Rented		Borrowed		under Other Forms of Tenure		
	No of Households	%	No of Households	%	No of Households	%	No of Households	%	No of Households	%	No of Households	%	
Kilwa	1,206	11	26,216	21	5,219	23	778	13.4	1,734	15	2,221	13	37,374
Lindi Rural	1,951	19	32,001	26	7,357	32	3,144	54.2	5,576	47	9,995	57	60,022
Nachingwea	3,933	37	29,937	24	6,088	27	262	4.5	2,261	19	2,966	17	45,446
Liwale	141	1	10,773	9	638	3	192	3.3	392	3	740	4	12,877
Ruangwa	3,253	31	22,306	18	2,692	12	1,393	24.0	1,658	14	862	5	32,164
Lindi Urban	37	0	1,911	2	903	4	35	0.6	173	1	858	5	3,917
Total	10,521	100	123,145	100	22,897	100	5,803	100	11,793	100	17,641	100	191,800

4.2 LAND ACCESS/OWNERSHIP: Area of Land (ha) by Ownership/Tenure (Hectare) and District for the 2002/03 Agricultural Year

District	Land Access/ Ownership (Hectare)								Total
	Area Leased/Certificate of Ownership	Area Owned Under Customary Law	Area Bought	Area Rented	Area Borrowed	Area Shared Cropped	Area under Other Forms of Tenure		
Kilwa	1,802	43,701	7,814	812	1,369	.	2,676	58,174	
Lindi Rural	2,141	60,059	10,255	2,721	3,947	943	16,682	96,748	
Nachingwea	6,518	61,731	8,190	177	1,524	36	6,225	84,400	
Liwale	183	34,851	701	375	370	45	3,142	39,667	
Ruangwa	6,158	40,935	3,004	1,107	1,069	95	934	53,303	
Lindi Urban	1,514	2,722	1,635	49	191	.	1,081	7,192	
Total	18,316	244,000	31,599	5,241	8,470	1,118	30,740	339,484	
%	5	72	9	2	2	0	9	100	

LAND USE

5.1 LAND USE: Number of Agricultural Households By Type of Land Use and District for the 2002/03 Agricultural Year

Districts	Type of Land Use												Total Number of Households
	Households with Temporary Mono Crops	Households with Temporary Mixed Crops	Households with Permanent Mono Crops	Households with Permanent Mixed Crops	Households with Permanent / Annual Mix	Households with Pasture	Households with Fallow	Households with Natural Bush	Households with Planted Trees	Households Rented to Others	Households Unusable	Households of Uncultivated Usable Land	
Kilwa	8,780	15,954	5,839	5,456	8,746	79	1,033	0	0	0	1,169	1,658	48,715
Lindi Rural	16,453	32,869	9,383	4,061	11,964	103	7,823	416	99	828	1,961	12,548	
Nachingwea	12,718	23,498	9,058	1,648	17,950	87	4,268	1,142	0	175	1,574	4,973	77,091
Liwale	4,936	5,488	4,884	422	4,980	0	1,458	251	0	111	556	1,759	24,843
Ruangwa	8,028	19,361	6,897	793	8,920	0	1,198	63	69	604	735	5,897	52,565
Lindi Urban	533	2,049	602	147	1,372	0	241	0	67	35	0	252	5,297
Total	51,448	99,220	36,664	12,526	53,932	268	16,021	1,872	234	1,753	5,994	27,086	307,018

5.2 LAND USE: Area of Land (Ha) by type of Land Use and District for the 2002/03 Agricultural Year

District	Land use area												Total
	Area under Temporary Mono Crops	Area under Temporary Mixed Crops	Area under Permanent Mono Crops	Area under Permanent Mixed Crops	Area under Permanent / Annual Mix	Area under Pasture	Area under Fallow	Area under Natural Bush	Area under Planted Trees	Area Rented to Others	Area Unusable	Area of Uncultivated Usable Land	
Kilwa	7,435	17,208	7,657	5,898	15,422	19	1,025	0	0	0	1,764	1,746	58,174
Lindi Rural	9,547	28,308	8,308	4,187	18,463	25	8,060	130	10	780	2,367	16,563	96,748
Nachingwea	9,502	23,867	9,471	2,817	23,162	35	4,821	2,855	0	141	1,911	5,817	84,400
Liwale	4,962	6,600	10,345	390	10,215	0	2,503	282	0	114	896	3,361	39,667
Ruangwa	4,720	18,893	9,119	547	10,052	0	1,501	25	28	720	663	7,035	53,303
Lindi Urban	282	1,958	717	374	2,391	0	186	0	19	28	0	1,237	7,192
Total	36,448	96,833	45,617	14,214	79,704	79	18,095	3,293	57	1,783	7,602	35,758	339,484
%	11	29	13	4	23	0	5	1	0	1	2	11	100

5.3: Number of Agricultural Households by Whether All Land Available to the Household Was Used and District, 2002/03 Agricultural Year

District	Was all Land Available to the Hh Used During 2002/03?					
	Yes		No		Total	
	Number	Percent	Number	Percent	Number	Percent
Kilwa	25,693	82	5,616	18	31,309	100
Lindi Rural	26,038	58	18,815	42	44,853	100
Nachingwea	23,302	66	11,865	34	35,167	100
Liwale	8,090	72	3,220	28	11,310	100
Ruangwa	19,181	70	8,042	30	27,222	100
Lindi Urban	2,387	76	766	24	3,153	100
Total	104,691	68	48,323	32	153,015	100

5.4: Number of Agricultural Households by Whether they Consider Having Sufficient Land for the Household and District, 2002/03 Agricultural Year

District	Do you Consider that you have sufficient land for the Hh?					
	Yes		No		Total	
	Number	Percent	Number	Percent	Number	Percent
Kilwa	19,018	61	12,291	39	31,309	100
Lindi Rural	33,068	74	11,785	26	44,853	100
Nachingwea	26,367	75	8,800	25	35,167	100
Liwale	8,776	78	2,534	22	11,310	100
Ruangwa	20,634	76	6,588	24	27,222	100
Lindi Urban	3,012	96	142	4	3,153	100
Total	110,875	72	42,140	28	153,015	100

5.5: Number of Agricultural Households by whether Female Members of the Household Own or Have Customary Right to Land and District, 2002/03 Agricultural Year

District	Do any Female Members of the Hh own or have customary right					
	Yes		No		Total	
	Number	Percent	Number	Percent	Number	Percent
Kilwa	2,422	8	28,886	92	31,309	100
Lindi Rural	13,384	30	31,469	70	44,853	100
Nachingwea	8,778	25	26,389	75	35,167	100
Liwale	1,637	14	9,673	86	11,310	100
Ruangwa	7,824	29	19,399	71	27,222	100
Lindi Urban	217	7	2,936	93	3,153	100
Total	34,263	22	118,752	78	153,015	100

**TOTAL ANNUAL CROP & VEGETABLES PRODUCTION
WET & DRY SEASONS**

7.1 & 7.2a TOTAL ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Crop Growing Households and Area Planted (ha) by District.

District	Wet Season	
	Number of household	Planted area (hectare)
Kilwa	67,745	36,929
Lindi Rural	127,669	51,544
Nachingwea	102,172	51,402
Liwale	32,337	20,876
Ruangwa	65,838	30,324
Lindi Urban	7,874	4,301
Total	403,635	195,375

7.1 & 7.2b TOTAL ANNUAL CROPS AND VEGETABLE PRODUCTION: Number of Crop Growing Households Planting Crops by Season and District.

District	Wet Season		
	Number of households Growing Crops	Number of households NOT Growing Crops	Total number of Crop growing Households
Kilwa	29,796	1,580	31,377
Lindi Rural	44,753	100	44,853
Nachingwea	35,167	0	35,167
Liwale	11,201	163	11,365
Ruangwa	27,154	69	27,222
Lindi Urban	3,083	106	3,189
Total	151,154	2,019	153,173

7.1 and 7.2c TOTAL ANNUAL CROP AND VEGETABLE PRODUCTION: Area planted (ha) and Quantity Harvested by Crop for the 2002/03 agriculture year, Lindi Region

Crop	Wet season		
	Area Planted (ha)	Quantity Harvested (tons)	Yield (kg/ha)
Maize	71,470	24,854	348
Paddy	15,703	5,180	330
Sorghum	34,872	9,768	280
Bulrush Millet	142	22	153
Finger Millet	218	93	427
Wheat	.	.	.
Barley	16	8	494
CEREALS	122,420	39,924	326
Cassava	46,788	25,814	552
Sweet Potatoes	258	197	762
Irish Potatoes	.	.	.
Yams	131	24	183
Cocoyam	13	5	412
ROOTS & TUBERS	47,189	26,040	552
Mung Beans	.	.	.
Beans	165	67	408
Cowpeas	5,329	894	168
Green Gram	73	14	188
Pigeon Peas	33	2	62
Chich Peas	.	.	.
Bambaranuts	396	78	196
Field Peas	20	2	78
PULSES	6,016	1,056	176
Sunflower	13,956	5,142	368
Simsim	4,579	1,551	339
Groundnuts	93	16	177
Soya Beans	93	0	0
Castor Seed	60	70	1,164
OIL SEEDS & OIL	18,782	7,836	417
Okra	101	37	362
Water Mellon	18	0	0
Cucumbber	13	1	88
Onions	191	405	2,119
Cabbage	.	.	.
Tomatoes	351	2,177	6,208
Egg Plant	12	9	741
Amaranths	47	8	174
Chillies	0	0	.
Pumpkins	263	0	0
FRUITS &	995	2,637	2,650
Total	195,402	1,725	1,761

*The total area planted include the sum of the planted area for both Wet and Dry Season and it is an overestimation of the actual area due to being produced on the same land during the two seasons. Previous surveys have used the Long/Wet Season to estimate physical land area under production to different crops

7.1 & 7.2d TOTAL ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Agriculture Households by Area Planted (ha) and crop for the Agriculture Year 2002/03 - Lindi Region

Crop	Wet Season	
	Number of Households	Planted area (ha)
CEREALS	243,318	122,420
Maize	128,506	71,470
Paddy	36,827	15,703
Sorghum	76,620	34,872
Bulrush Millet	501	142
Finger Millet	786	218
Wheat	0	.
Barley	79	16
Maize	90,021	47,189
Cassava	88,540	46,788
Sweet Potatoes	1,026	258
Irish Potatoes	0	.
Yams	352	131
Cocoyam	104	13
PULSES	20,791	6,016
Mung Beans	0	.
Beans	828	165
Cowpeas	17,548	5,329
Green Gram	271	73
Pigeon Peas	68	33
Chich Peas	0	.
Bambaranuts	1,907	396
Field Peas	169	20
OIL SEEDS & OIL NUTS	43,927	18,700
Sunflower	103	10
Simsim	33,452	13,956
Groundnuts	10,120	4,579
Soya Beans	145	93
Castor Seed	106	60
FRUITS & VEGETABLES	5,293	995
Okra	110	101
Radish	0	.
Turmeric	0	.
Onions	1,172	191
Cabbage	0	0
Tomatoes	1,409	351
Spinnach	0	0
Water Mellon	88	18
Cucumber	116	13
Amaranths	322	47
Pumpkins	2,048	263
Total	403,350	195,320

7.1 & 7.2e TOTAL ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Crop Growing Households and Planted Area (ha) By Means of Soil Preparation and District, LINDI

District	Soil Preparation							
	Mostly Tractor Ploughing		Mostly Oxen Ploughing		Mostly Hand Cultivation		Total	
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area
Kilwa	378	497	388	429	29,030	36,003	29,796	36,929
Lindi Rural	106	21	1,813	2,328	42,834	49,194	44,753	51,544
Nachingwea	435	272	870	1,843	33,862	49,284	35,167	51,398
Liwale	107	161	333	520	10,762	20,196	11,201	20,876
Ruangwa	1,370	1,267	804	954	24,980	27,882	27,154	30,103
Lindi Urban	0		36	7	3,047	4,150	3,083	4,157
Total	2,395	2,218	4,244	6,080	144,515	186,708	151,154	195,006
%		1		3		96		100

7.1 & 7.2f TOTAL ANNUAL CROP AND VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Fertilizer Use and District for the 2002/03 Agriculture Year, LINDI

District	Fertilizer Use									
	Mostly Farm Yard		Mostly Compost		Mostly Inorganic		No Fertilizer Applied		Total	
	Number of Household	Planted Area	Number of Household	Planted Area	Number of Household	Planted Area	Number of Household	Planted Area	Number of Household	Planted Area
Kilwa	384	667	1,025	1,259	75	39	28,312	34,964	29,796	36,929
Lindi Rural	199	226	509	942	192	156	43,852	50,220	44,753	51,544
Nachingwea	175	195	519	478	0		34,473	50,728	35,167	51,402
Liwale	57	46	396	880	83	99	10,665	19,852	11,201	20,876
Ruangwa	131	233	330	258	405	766	26,288	29,066	27,154	30,324
Lindi Urban	168	173	0		0		2,985	4,129	3,153	4,301
Total	1,114	1,538	2,779	3,819	756	1,060	146,576	188,959	151,224	195,375

7.1 & 7.2g TOTAL ANNUAL CROP AND VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Irrigation Use and District during Wet Season, 2002/03 Agriculture Year

District	Irrigation Use						% of Area Planted Under Irrigation
	Households Using Irrigation		Households not Using Irrigation		Total		
	Number of Household	Planted Area (Ha)	Number of Household	Planted Area (Ha)	Number of Household	Planted Area (Ha)	
Kilwa	396	565	29,401	36,364	29,796	36,929	0.29
Lindi Rural	827	961	43,926	50,583	44,753	51,544	0.49
Nachingwea	435	753	34,732	50,649	35,167	51,402	0.39
Liwale	85	132	11,116	20,744	11,201	20,876	0.07
Ruangwa	938	1,272	26,215	29,052	27,154	30,324	0.65
Lindi Urban	316	383	2,837	3,919	3,153	4,301	0.20
Total	2,996	4,066	148,228	191,309	151,224	195,375	0.35

7.1 & 7.2h TOTAL ANNUAL CROP & VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Insecticide Use and District for the 2002/03 Agriculture Year - Wet Season.

District	Insecticide Use						% of Planted Area Using Insecticides
	Households Using Insecticides		Households Not Using Insecticides		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Kilwa	1,426	1,957	28,370	34,972	29,796	36,929	5.30
Lindi Rural	1,206	1,709	43,547	49,835	44,753	51,544	3.32
Nachingwea	1,305	2,085	33,862	49,317	35,167	51,402	4.06
Liwale	510	1,010	10,692	19,866	11,201	20,876	4.84
Ruangwa	1,213	1,501	25,941	28,822	27,154	30,324	4.95
Lindi Urban	106	175	3,048	4,127	3,153	4,301	4.06
Total	5,765	8,437	145,459	186,938	151,224	195,375	4.42

7.1 & 7.2i TOTAL ANNUAL CROP & VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Herbicide Use and District for the 2002/03 Agriculture Year - Wet Season.

District	Herbicide Use						% of Planted Area Using Herbicides
	Households Using Herbicide		Households Not Using Herbicide		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Kilwa	233	216	29,564	36,713	29,796	36,929	0.58
Lindi Rural	500	457	44,252	51,087	44,753	51,544	0.89
Nachingwea	256	363	34,911	51,039	35,167	51,402	0.71
Liwale	83	138	11,118	20,738	11,201	20,876	0.66
Ruangwa	677	569	26,476	29,754	27,154	30,324	1.88
Lindi Urban	0		3,153	4,301	3,153	4,301	0.00
Total	1,750	1,742	149,475	193,633	151,224	195,375	0.89
%	1.2	0.9	98.8	99.1	100	100	0.93

7.1 & 7.2j TOTAL ANNUAL CROP & VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Fungicides Use and District for the 2002/03 Agriculture Year - Wet Season.

District	Fungicide Use						% of Planted Area Using Fungicides
	Households Using		Households Not Using		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Kilwa	235	251	29,562	36,678	29,796	36,929	0.68
Lindi Rural	798	583	43,955	50,961	44,753	51,544	1.13
Nachingwea	606	1,348	34,561	50,054	35,167	51,402	2.62
Liwale	339	693	10,863	20,183	11,201	20,876	3.32
Ruangwa	535	575	26,618	29,749	27,154	30,324	1.90
Lindi Urban	37	144	3,116	4,158	3,153	4,301	3.34
Total	2,551	3,593	148,673	191,782	151,224	195,375	1.84

7.1 & 7.2k TOTAL ANNUAL CROP & VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Improved Seed Use and District for the 2002/03 Agriculture Year - Wet Season.

District	Improved Seed Use						% of Planted Area Using Improved Seeds
	Households Using Improved		Households Not Using		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Kilwa	1,020	1,060	28,776	35,869	29,796	36,929	2.87
Lindi Rural	1,165	1,457	43,588	50,087	44,753	51,544	2.83
Nachingwea	2,952	4,634	32,215	46,764	35,167	51,398	9.02
Liwale	1,012	2,579	10,189	18,297	11,201	20,876	12.35
Ruangwa	5,853	6,578	21,300	23,525	27,154	30,103	21.85
Lindi Urban	253	774	2,830	3,383	3,083	4,157	18.63
Total	12,255	17,082	138,899	177,924	151,154	195,006	8.76

**ANNUAL CROP & VEGETABLES PRODUCTION
DRY SEASON**

7.1a ANNUAL CROP AND VEGETABLE PRODUCTION: Total Number of Crop Growing Households and Planted Area by Fertilizer Use and District during 2002/03 Agriculture Year - WET SEASON, LINDI Region

District	Fertilizer Use									
	Mostly Farm Yard Manure		Mostly Compost		Mostly Inorganic		No Fertilizer Applied		Total	
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area
Kilwa	384	667	1,025	1,259	75	39	28,312	34,964	29,796	36,929
Lindi Rural	199	226	509	942	192	156	43,852	50,220	44,753	51,544
Nachingwea	175	195	519	478	0		34,473	50,728	35,167	51,402
Liwale	57	46	396	880	83	99	10,665	19,852	11,201	20,876
Ruangwa	131	233	330	258	405	766	26,288	29,066	27,154	30,324
Lindi Urban	168	173	0		0		2,985	4,129	3,153	4,301
Total	1,114	1,538	2,779	3,819	756	1,060	146,576	188,959	151,224	195,375
%	0.7	0.8	1.8	2.0	0.5	0.5	96.9	96.7	100	100

7.1b ANNUAL CROP AND VEGETABLE PRODUCTION: Total Number of Crop Growing Households and Planted Area by Irrigation Use and District during WET Season, 2002/03 Agriculture Year, LINDI Region

District	Irrigation Use						% of planted area under irrigation in WET season
	Households Using Irrigation		Households Not Using		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Kilwa	396	565	29,401	36,364	29,796	36,929	2
Lindi Rural	827	961	43,926	50,583	44,753	51,544	2
Nachingwea	435	753	34,732	50,649	35,167	51,402	0
Liwale	85	132	11,116	20,744	11,201	20,876	0
Ruangwa	938	1,272	26,215	29,052	27,154	30,324	0
Lindi Urban	316	383	2,837	3,919	3,153	4,301	0
Total	2,996	4,066	148,228	191,309	151,224	195,375	2
%	2	2	98	98	100	100	

7.1c ANNUAL CROP & VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Insecticide Use and District for the 2002/03 Agriculture Year - WET Season.

District	Insecticide Use						% of Planted Area Using Insecticides
	Household Using Insecticides		Households Not Using Insecticides		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Kilwa	1,426	1,957	28,370	34,972	29,796	36,929	1.00
Lindi Rural	1,206	1,709	43,547	49,835	44,753	51,544	0.87
Nachingwea	1,305	2,085	33,862	49,317	35,167	51,402	1.07
Liwale	510	1,010	10,692	19,866	11,201	20,876	0.52
Ruangwa	1,213	1,501	25,941	28,822	27,154	30,324	0.77
Lindi Urban	106	175	3,048	4,127	3,153	4,301	0.09
Total	5,765	8,437	145,459	186,938	151,224	195,375	0.72

7.1d ANNUAL CROP & VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Herbicides Use and District for the 2002/03 Agriculture Year - WET Season.

District	Herbicide Use						% of Planted Area Using Herbicides
	Household Using Herbicides		Households Not Using Herbicides		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Kilwa	233	216	29,564	36,713	29,796	36,929	0.11
Lindi Rural	500	457	44,252	51,087	44,753	51,544	0.23
Nachingwea	256	363	34,911	51,039	35,167	51,402	0.19
Liwale	83	138	11,118	20,738	11,201	20,876	0.07
Ruangwa	677	569	26,476	29,754	27,154	30,324	0.29
Lindi Urban	0	0	3,153	4,301	3,153	4,301	0.00
Total	1,750	1,742	149,475	193,633	151,224	195,375	0.15

7.1e ANNUAL CROP & VEGETABLE PRODUCTION: Total Number of Agriculture Households and Planted Area by Fungicide Use and District for the 2002/03 Agriculture Year - WET Season.

	Fungicide Use						% of Planted Area Using Fungicides
	Household Using		Households Not Using		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Kilwa	235	251	29,562	36,678	29,796	36,929	0.13
Lindi Rural	798	583	43,955	50,961	44,753	51,544	0.30
Nachingwea	606	1,348	34,561	50,054	35,167	51,402	0.69
Liwale	339	693	10,863	20,183	11,201	20,876	0.35
Ruangwa	535	575	26,618	29,749	27,154	30,324	0.29
Lindi Urban	37	144	3,116	4,158	3,153	4,301	0.07
Total	2,551	3,593	148,673	191,782	151,224	195,375	0.31

7.1f ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Crop Growing Households and Planted Area By Improved Seed Use and District During 2002/03 Crop Year - WET SEASON

District	Improved Seed Use						% of Planted Area Using Improved Seed
	Households Using		Households Not Using		Total		
	Number of Household	Planted Area	Number of Household	Planted Area	Number of Household	Planted Area	
Kilwa	1,020	1,060	28,776	35,869	29,796	36,929	0.5
Lindi Rural	1,165	1,457	43,588	50,087	44,753	51,544	0.7
Nachingwea	2,952	4,634	32,215	46,764	35,167	51,398	2.4
Liwale	1,012	2,579	10,189	18,297	11,201	20,876	1.3
Ruangwa	5,853	6,578	21,300	23,525	27,154	30,103	3.4
Lindi Urban	253	774	2,830	3,383	3,083	4,157	0.4
Total	12,255	17,082	138,899	177,924	151,154	195,006	8.8
%	8	9	92	91	100	100	2.9

**ANNUAL CROP & VEGETABLES PRODUCTION
WET SEASON**

7.2a ANNUAL CROP AND VEGETABLE PRODUCTION: Number of Households and Planted Area by Means Used for Soil Preparation and District - WET SEASON, LINDI Region.

District	Soil Preparation							
	Mostly Tractor Ploughing		Mostly Oxen Ploughing		Mostly Hand Cultivation		Total	
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area
Kilwa	378	497	388	429	29,030	36,003	29,796	36,929
Lindi Rural	106	21	1,813	2,328	42,834	49,194	44,753	51,544
Nachingwea	435	272	870	1,843	33,862	49,284	35,167	51,398
Liwale	107	161	333	520	10,762	20,196	11,201	20,876
Ruangwa	1,370	1,267	804	954	24,980	27,882	27,154	30,103
Lindi Urban	0		36	7	3,047	4,150	3,083	4,157
Total	2,395	2,218	4,244	6,080	144,515	186,708	151,154	195,006
%	2	1	3	3	96	96	100	100

7.2b ANNUAL CROP AND VEGETABLE PRODUCTION: Total Number of Crop Growing Households and Planted Area by Fertilizer Use and District during 2002/03 Agriculture Year - WET SEASON, LINDI Region

District	Fertilizer Use									
	Mostly Farm Yard Manure		Mostly Compost		Mostly Inorganic Fertilizer		No Fertilizer Applied		Total	
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area
Kilwa	384	667	1,025	1,259	75	39	28,312	34,964	29,796	36,929
Lindi Rural	199	226	509	942	192	156	43,852	50,220	44,753	51,544
Nachingwea	175	195	519	478	0	0	34,473	50,728	35,167	51,402
Liwale	57	46	396	880	83	99	10,665	19,852	11,201	20,876
Ruangwa	131	233	330	258	405	766	26,288	29,066	27,154	30,324
Lindi Urban	168	173	0	0	0	0	2,985	4,129	3,153	4,301
Total	1,114	1,538	2,779	3,819	756	1,060	146,576	188,959	151,224	195,375

7.2c ANNUAL CROP AND VEGETABLE PRODUCTION: Total Number of Crop Growing Households and Planted Area by Irrigation Use and District during Wet Season, 2002/03 Agriculture Year, LINDI Region

District	Irrigation Use						% of planted area under irrigation in dry season
	Households Using Irrigation		Households Not Using Irrigation		Total		
	Number of Households	Planted Area	Number of Households	Planted Area	Number of Households	Planted Area	
Kilwa	396	565	29,401	36,364	29,796	36,929	2
Lindi Rural	827	961	43,926	50,583	44,753	51,544	2
Nachingwea	435	753	34,732	50,649	35,167	51,402	1
Liwale	85	132	11,116	20,744	11,201	20,876	1
Ruangwa	938	1,272	26,215	29,052	27,154	30,324	4
Lindi Urban	316	383	2,837	3,919	3,153	4,301	9
Total	2,996	4,066	148,228	191,309	151,224	195,375	2
%	2	2	76	98	100	100	

Table 7.2d: Planted Area and Number of Crop Growing Households During Wet Season by Method of Land Clearing and Crops; 2002/03 Agriculture Year

Crop	Land Clearing											
	Mostly Bush Clearance		Mostly Hand Slashing		Mostly Tractor Slashing		Mostly Burning		Not cleared		Total	
	Number of House-holds	Planted Area	Number of House-holds	Planted Area	Number of House-holds	Planted Area	Number of House-holds	Planted Area	Number of House-holds	Planted Area	Number of House-holds	Planted Area
CEREALS		29,255		86,818		2,063		3,367		799		122,308
Maize	28,711	17,144	93,206	51,050	1,557	882	3,865	1,985	954	336	128,294	71,397
Paddy	7,770	3,670	25,341	10,335	1,823	901	751	411	973	369	36,740	15,692
Sorghum	17,531	8,321	55,688	25,176	734	281	2,117	970	481	95	76,551	34,844
Bulrush												
Millet	197	41	304	101	0		0		0		501	142
Finger Millet	229	77	557	140	0		0		0		786	218
Barley	0		79	16	0		0		0		79	16
ROOTS & TUBERS		8,380		36,712		498		792		314		46,696
Cassava	15,415	8,288	67,604	36,403	965	498	2,242	792	1,038	314	87,264	46,294
Sweet	365	93	661	165	0		0		0		1,026	258
Yams	0		352	131	0		0		0		352	131
Cocoyam	0		104	13	0		0		0		104	13
PULSES		1,004		4,878		33		86		15		6,016
Beans	318	77	509	87	0		0		0		828	165
Cowpeas	2,846	884	14,106	4,311	81	33	412	86	103	15	17,548	5,329
Green Gram	88	7	183	66	0		0		0		271	73
Pigeon Peas	0		68	33	0		0		0		68	33
Bambaranut	176	36	1,731	361	0		0		0		1,907	396
Field Peas	0		169	20	0		0		0		169	20
OIL SEEDS & OIL NUTS		4,637		13,293		206		410		118		18,664
Sunflower	0		103	10	0		0		0		103	10
Simsim	8,526	3,748	23,551	9,772	136	52	865	250	289	99	33,365	13,921
Groundnuts	1,564	758	7,896	3,489	173	153	391	160	96	19	10,120	4,579
Soya Beans	88	71	57	22	0		0		0		145	93
Castor Seed	106	60	0		0		0		0		106	60
FRUITS & VEGETABLES		90		832				54		19		995
Okra	81	30	29	72	0		0		0		110	101
Onions	69	7	897	146	0		137	24	69	14	1,172	191
Tomatoes	0		1,272	322	0		137	29	0		1,409	351
Amaranths	0		234	42	0		0		88	5	322	47
Pumpkins	57	35	1,991	227	0		0		0		2,048	263
Cucumber	0		116	13	0		0		0		116	13
Egg Plant	0		29	12	0		0		0		29	12
Water	88	18	0		0		0		0		88	18
Total		43,366		142,533		2,767		4,709		1,265		194,679
%		22		73		1		2		1		100

**Table 7.2.1: Number of Agricultural Households, Area Planted (ha) and Quantity of Maize Harvested (tons) by Season and District;2002/03
Agricultural Year**

District	Maize			
	Wet Season			
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Kilwa	20,747	11,056	3,652	0.330
Lindi Rural	35,765	14,876	5,869	0.395
Nachingwea	34,560	22,714	7,551	0.332
Liwale	9,924	7,658	2,468	0.322
Ruangwa	25,331	14,191	5,146	0.363
Lindi Urban	2,178	975	169	0.173
Total	128,506	71,470	24,854	0.348

**Table 7.2.2: Number of Agricultural Households, Area Planted (ha) and Quantity of Burlush millet Harvested (tons) by Season and District;2002/03
Agricultural Year**

District	Burlush millet			
	Wet Season			
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Kilwa	318	112	14	0.121
Lindi Rural	0	.	.	0.000
Nachingwea	88	9	6	0.608
Liwale	29	8	1	0.182
Ruangwa	67	13	1	0.082
Lindi Urban	0	.	.	0.000
Total	501	142	22	0.153

**Table 7.2.3: Number of Agricultural Households, Area Planted (ha) and Quantity of Paddy Harvested (tons) by Season and District;2002/03
Agricultural Year**

District	Paddy			
	Wet Season			
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Kilwa	11,767	5,970	1,719	0.288
Lindi Rural	15,143	6,101	2,293	0.376
Nachingwea	6,357	2,183	825	0.000
Liwale	2,305	984	313	0.000
Ruangwa	933	297	25	0.085
Lindi Urban	323	168	4	0.026
Total	36,827	15,703	5,180	0.330

**Table 7.2.4: Number of Agricultural Households, Area Planted (ha) and Quantity of Sorghum Harvested (tons) by Season and District;2002/03
Agricultural Year**

District	Sorghum			
	Wet Season			
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Kilwa	13,455	6,937	2,011	0.290
Lindi Rural	27,001	10,850	3,595	0.331
Nachingwea	15,610	6,638	1,507	0.227
Liwale	7,086	4,273	1,017	0.238
Ruangwa	11,092	5,108	1,432	0.280
Lindi Urban	2,376	1,066	206	0.194
Total	76,620	34,872	9,768	0.280

Table 7.2.5: Number of Agricultural Households, Area Planted (ha) and Quantity of Finger millet Harvested (tons) by Season and District;2002/03 Agricultural Year

Finger millet				
District	Wet Season			
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Kilwa	0	.	.	0.000
Lindi Rural	206	45	14	0.316
Nachingwea	263	92	62	0.676
Liwale	283	70	13	0.187
Ruangwa	0	.	.	0.000
Lindi Urban	35	11	3	0.325
Total	786	218	93	0.427

Table 7.2.6: Number of Agricultural Households, Area Planted (ha) and Quantity of Beans Harvested (tons) by Season and District;2002/03 Agricultural Year

Beans				
District	Wet Season			
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Kilwa	0	.	.	0.000
Lindi Rural	531	113	56	0.490
Nachingwea	172	11	2	0.144
Liwale	57	18	5	0.247
Ruangwa	68	22	5	0.247
Lindi Urban	0	.	.	0.000
Total	828	165	67	0.408

Table 7.2.7: Number of Agricultural Households, Area Planted (ha) and Quantity of Green gram Harvested (tons) by Season and District;2002/03 Agricultural Year

Green gram				
District	Wet Season			
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Kilwa	0	.	.	0.000
Lindi Rural	0	.	.	0.000
Nachingwea	176	30	13	0.453
Liwale	28	6	0	0.050
Ruangwa	67	38	0	0.000
Lindi Urban	0	.	.	0.000
Total	271	73	14	0.188

Table 7.2.8: Number of Agricultural Households, Area Planted (ha) and Quantity of COW PEAS Harvested (tons) by Season and District;2002/03 Agricultural Year

Cow peas				
District	Wet Season			
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Kilwa	2,253	759	116	0.152
Lindi Rural	7,483	2,269	405	0.178
Nachingwea	4,795	1,483	226	0.152
Liwale	1,753	496	118	0.237
Ruangwa	995	224	27	0.122
Lindi Urban	270	97	3	0.026
Total	17,548	5,329	894	0.168

Table 7.2.9: Number of Agricultural Households, Area Planted (ha) and Quantity of BAMBARANUTS Harvested (tons) by Season and District;2002/03 Agricultural Year

Bambara nuts				
District	Wet Season			
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Kilwa	80	33	20.1	0.618
Lindi Rural	931	138	20.5	0.148
Nachingwea	698	197	26.5	0.135
Liwale	0	.	.	0.000
Ruangwa	198	28	11	0.374
Lindi Urban	0	.	.	0.000
Total	1,907	396	78	0.196

Table 7.2.10: Number of Agricultural Households, Area Planted (ha) and Quantity of GREEN GRAM Harvested (tons) by Season and District;2002/03 Agricultural Year

Green gram				
District	Wet Season			
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Kilwa	0	.	.	0.000
Lindi Rural	0	.	.	0.000
Nachingwea	176	30	13	0.453
Liwale	28	6	0	0.000
Ruangwa	67	38	0	0.000
Lindi Urban	0	.	.	0.000
Total	271	73	14	0.188

Table 7.2.11: Number of Agricultural Households, Area Planted (ha) and Quantity of Cassava Harvested (tons) by Season and District;2002/03 Agricultural Year

Cassava				
District	Wet Season			
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Kilwa	10,620	7,566	8,655	1.144
Lindi Rural	25,675	12,845	5,229	0.407
Nachingwea	26,265	12,292	5,648	0.459
Liwale	5,843	4,563	2,364	0.518
Ruangwa	17,971	7,693	3,308	0.430
Lindi Urban	2,166	1,829	610	0.333
Total	88,540	46,788	25,814	0.552

Table 7.2.13: Number of Agricultural Households, Area Planted (ha) and Quantity of Sweet potatoes Harvested (tons) by Season and District;2002/03 Agricultural Year

Sweet potatoes				
District	WET Season			
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Kilwa	321	128	76	0.593
Lindi Rural	390	31	65	2.096
Nachingwea	175	71	31	0.432
Liwale	140	28	25	0.892
Ruangwa	0	.	.	0.000
Lindi Urban	0	.	.	0.000
Total	1,026	258	197	0.762

Table 7.2.14: Number of Agricultural Households, Area Planted (ha) and Quantity of YAMS Harvested (tons) by Season and District;2002/03 Agricultural Year

Yams				
District	WET Season			
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Kilwa	58	31	1	0.038
Lindi Rural	206	12	10	0.774
Nachingwea	88	88	13	0.150
Liwale	0	.	.	0.000
Ruangwa	0	.	.	0.000
Lindi Urban	0	.	.	0.000
Total	352	131	24	0.183

Table 7.2.15: Number of Agricultural Households, Area Planted (ha) and Quantity of Groundnuts Harvested (tons) by Season and District;2002/03 Agricultural Year

Groundnuts				
District	WET Season			
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Kilwa	783	861	125	0.146
Lindi Rural	4,040	1,611	788	0.489
Nachingwea	2,794	1,142	283	0.248
Liwale	1,566	699	262	0.375
Ruangwa	803	218	87	0.401
Lindi Urban	135	48	5	0.105
Total	10,120	4,579	1,551	0.339

Table 7.2.16: Number of Agricultural Households, Area Planted (ha) and Quantity of Soya beans Harvested (tons) by Season and District;2002/03 Agricultural Year

Soya beans				
District	WET Season			
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Kilwa	0	.	.	0.000
Lindi Rural	0	.	.	0.000
Nachingwea	88	71	10	0.143
Liwale	57	22	6	0.286
Ruangwa	0	.	.	0.000
Lindi Urban	0	.	.	0.000
Total	145	93	16	0.177

Table 7.2.17: Number of Agricultural Households, Area Planted (ha) and Quantity of Simsim Harvested (tons) by Season and District;2002/03 Agricultural Year

Simsim				
District	Wet Season			
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Kilwa	6,953	3,406	1,367	0.401
Lindi Rural	6,823	2,097	632	0.301
Nachingwea	9,434	4,262	1,198	0.281
Liwale	2,923	1,836	1,038	0.565
Ruangwa	6,959	2,257	886	0.392
Lindi Urban	360	99	22	0.217
Total	33,452	13,956	5,142	0.368

Table 7.2.18: Number of Agricultural Households, Area Planted (ha) and Quantity of Tomatoes Harvested (tons) by Season and District;2002/03 Agricultural Year

Tomatoes				
District	Wet Season			
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Kilwa	72	7	1	0.099
Lindi Rural	692	158	1,309	8.308
Nachingwea	88	53	237	4.446
Liwale	86	43	33	0.776
Ruangwa	472	90	598	6.645
Lindi Urban	0	.	.	0.000
Total	1,409	351	2,177	6.208

Table 7.2.19: Number of Agricultural Households, Area Planted (ha) and Quantity of Okra Harvested (tons) by Season and District;2002/03 Agricultural Year

Okra				
District	Wet Season			
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Kilwa	81	30	2	0.082
Lindi Rural	0	.	.	0.000
Nachingwea	0	.	.	0.000
Liwale	29	72	34	0.477
Ruangwa	0	.	.	0.000
Lindi Urban	0	.	.	0.000
Total	110	101	37	0.362

Table 7.2.20: Number of Agricultural Households, Area Planted (ha) and Quantity of Pumpkins Harvested (tons) by Season and District;2002/03 Agricultural Year

Pumpkins				
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Wet Season
				Yield (tons/ha)
Kilwa	0	.	.	0
Lindi Rural	1,757	196	189	0.965
Nachingwea	174	18	47	2.666
Liwale	85	40	26	0.636
Ruangwa	0	.	.	0.000
Lindi Urban	32	9	0	0.000
Total	2,048	263	262	0.996

Table 7.2.21: Number of Agricultural Households, Area Planted (ha) and Quantity of Cucumber Harvested (tons) by Season and District;2002/03 Agricultural Year

Cucumber				
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Wet Season
				Yield (tons/ha)
Kilwa	0	.	.	0.000
Lindi Rural	0	.	.	0.000
Nachingwea	87	7	1	0.161
Liwale	29	6	.	0.000
Ruangwa	0	.	.	0.000
Lindi Urban	0	.	.	0.000
Total	116	13	1	0.088

Table 7.2.22: Number of Agricultural Households, Area Planted (ha) and Quantity of Onions Harvested (tons) by Season and District;2002/03 Agricultural Year

Onions				
District	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Wet Season
				Yield (tons/ha)
Kilwa	81	8	23	2.766
Lindi Rural	200	27	2	0.071
Nachingwea	86	18	69	3.952
Liwale	57	31	12	0.376
Ruangwa	748	107	300	2.790
Lindi Urban	0	.	.	0.000
Total	1,172	191	405	2.119

Table 7.2.23: Number of Agricultural Households, Area Planted (ha) and Quantity of Spinach Harvested (tons) by Season and District;2002/03 Agricultural Year

Spinach				
District	Wet Season			
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Kilwa	0	.	.	0.000
Lindi Rural	0	.	.	0.000
Nachingwea	0	.	.	
Liwale	0	.	.	0.000
Ruangwa	0	.	.	0.000
Lindi Urban	0	.	.	0.000
Total	0	.	.	0.000

Table 7.2.24: Number of Agricultural Households, Area Planted (ha) and Quantity of Carrot Harvested (tons) by Season and District;2002/03 Agricultural Year

Carrot				
District	Wet Season			
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Kilwa	0	.	.	0.000
Lindi Rural	0	.	.	
Nachingwea	0	.	.	0.000
Liwale	0	.	.	0.000
Ruangwa	0	.	.	0.000
Lindi Urban	0	.	.	0.000
Total	0	.	.	0.000

Table 7.2.25: Number of Agricultural Households, Area Planted (ha) and Quantity of Chillies Harvested (tons) by Season and District;2002/03 Agricultural Year

Chillies				
District	Wet			
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Kilwa	0	.	.	0.000
Lindi Rural	0	.	.	
Nachingwea	0	.	.	0.000
Liwale	0	.	.	0.000
Ruangwa	0	.	.	0.000
Lindi Urban	0	.	.	0.000
Total	0	.	.	0.000

Table 7.2.26: Number of Agricultural Households, Area Planted (ha) and Quantity of Amaranths Harvested (tons) by Season and District;2002/03 Agricultural Year

Amaranths				
District	Wet			
	Number of Households	Planted Area (ha)	Quantity Harvested (tons)	Yield (tons/ha)
Kilwa	0	.	.	0
Lindi Rural	205	30	5.14	0.171
Nachingwea	88	5	0.44	0.082
Liwale	29	12	2.57	0.222
Ruangwa	0	.	.	0.000
Lindi Urban	0	.	.	0.000
Total	322	47	8.14	0.174

PERMANENT CROPS

7.3.1 PERMANENT CROPS: Production of Permanent Crops by Crop Type and District - LINDI

District/Crop		Area planted (ha)	Area Harvested (ha)	Quantity Harvested (tons)	Yield (Kgs/ha)
Kilwa	Pigeon Pea	625	635	316	497
	Palm Oil	.	.	16	0
	Coconut	5,541	6,430	13,031	2,026
	Cashewnut	5,304	3,255	3,018	927
	Sugarcane	.	.	.	0
	Jack Fruit	.	.	1	0
	Banana	93	84	1,431	17,023
	Mango	880	324	4,854	14,988
	Pawpaw	.	.	237	0
	Pineapple	57	57	810	14,314
	Orange	1,437	2,724	10,537	3,869
	Lime/Lemon	.	0	396	0
	Total	13,948	13,189	34,458	2,613
	Lindi Rural	Pigeon Pea	1,217	717	352
Coconut		1,756	1,775	5,859	3,300
Cashewnut		12,404	9,597	1,978	206
Sugarcane		29	29	124	4,245
Banana		9	73	365	5,003
Avocado		11	11	13	1,186
Mango		44	44	130	2,932
Orange		79	64	233	3,625
Total		15,550	12,310	9,053	735
Nachingwea		Pigeon Pea	9,012	2,435	1,039
	Star Fruit	0	.	24	0
	Coconut	2	32	1	19
	Cashewnut	13,521	8,247	3,432	416
	Sugarcane	18	18	192	10,875
	Banana	150	114	443	3,887
	Mango	248	216	3,601	16,680
	Pawpaw	12	.	46	0
	Orange	25	35	180	5,150
	Guava	18	18	7	396
	Total	23,005	11,114	8,965	807
	Liwale	Pigeon Pea	143	75	38
Coconut		293	244	81	330
Cashewnut		10,807	8,767	2,390	273
Sugarcane		9	9	833	94,842
Cloves		2	.	1	0
Banana		15	15	130	8,440
Mango		657	23	342	14,991
Pawpaw		4	.	3	0
Orange		22	10	201	20,536
Guava		1	1	49	42,237
Total		11,953	9,145	4,068	445

Cont....: Production of Permanent Crops by Crop Type and District - LINDI

Ruangwa	Pigeon Pea	3,095	2,263	738	326
	Star Fruit	.	.	4	
	Coconut	109	54	51	950
	Cashewnut	13,403	8,956	2,359	263
	Banana	139	0	44	
	Mango	.	.	94	
	Pawpaw	.	0	.	
	Orange	306	56	728	13,086
	Lime/Lemon	.	.	.	
	Total	17,053	11,328	4,018	355
Lindi Urban	Pigeon Pea	39	44	16	360
	Coconut	680	543	476	877
	Cashewnut	243	240	344	1,435
	Banana	30	30	10	331
	Mango	.	0	.	
	Total	993	857	846	988
Total	Pigeon Pea	14,142	5,849	2,308	395
	Star Fruit	0	.	28	
	Palm Oil	.	.	16	
	Coconut	8,381	9,078	19,498	2,148
	Cashewnut	55,683	39,062	13,521	346
	Sugarcane	56	56	1,149	20,658
	Cloves	2	.	1	
	Jack Fruit	.	.	1	
	Banana	437	317	2,423	7,652
	Avocado	11	11	13	1,186
	Mango	1,830	607	9,022	14,863
	Pawpaw	16	0	286	
	Pineapple	57	57	810	14,314
	Orange	1,869	2,888	11,880	4,113
	Guava	19	19	56	2,954
	Lime/Lemon	.	0	396	
	Total	82,503	57,943	61,407	1,060

**7.3.2 PERMANENT CROP: Area Planted by
Crop Type - LINDI Region**

Crop	Area Planted	%
Cashewnut	55,683	67.49
Pigeon Pea	14,142	17.14
Coconut	8,381	10.16
Orange	1,869	2.27
Mango	1,830	2.22
Banana	437	0.53
Pineapple	57	0.07
Sugarcane	56	0.07
Guava	19	0.02
Pawpaw	16	0.02
Avocado	11	0.01
Cloves	2	0.00
Star Fruit	0	0.00
Total	82,503	100

7.3.3 PERMANENT CROPS: Area Planted with Pigeon peas by District

Pigeon peas					
District	Area Planted with Pigeon peas	Total Area Planted (Ha)	% of Total Area Planted	Households with Pigeon peas	Average Planted Area per Household
Kilwa	635	36,929	1.7	1,067	0.6
Lindi Rural	1,217	51,544	2.4	4,510	0.3
Nachingwea	9,012	51,402	17.5	11,388	0.8
Liwale	143	20,876	0.7	503	0.3
Ruangwa	3,095	30,324	10.2	8,393	0.4
Lindi Urban	39	4,301	0.9	133	0.3
Total	14,142	195,375	7.2	25,995	0.5

7.3.4 PERMANENT CROPS: Area planted with Oranges by District

Oranges					
District	Area Planted with Oranges	Total Area Planted (Ha)	% of Total Area Planted	Households with Oranges	Average Planted Area per Household
Kilwa	1,437	36,929	3.9	3103	0.5
Lindi Rural	79	51,544	0.2	407	0.2
Nachingwea	25	51,402	0.0	433	0.1
Liwale	22	20,876	0.1	113	0.2
Ruangwa	306	30,324	1.0	200	1.5
Lindi Urban	0	4,301	0.0	0	0.0
Total	1,869	195,375	1.0	4256	0.4

7.3.5 PERMANENT CROPS: Planted Area with Fertilizer by Fertilizer Type and Crop

Crop	Fertilizer Use				Total
	Mostly Farm Yard Manure	Mostly Compost	Mostly Inorganic Fertilizer	No Fertilizer Applied	
Rubber Vine Fruit	0	104	0	0	104
Pigeon Pea	2,383	751	463	16,081	19,678
Malay Apple	0	0	0	0	0
Sugarcane	145	0	0	453	598
Nutmeg	0	0	0	0	0
Banana	1,119	45	0	623	1,786
Mango	104	23	0	542	669
Pawpaw	172	0	0	140	312
Orange	48	0	0	1	49
Grape	41	0	0	51	92
Mandarine/Tangerine	0	0	0	0	0
Guava	87	45	0	1,093	1,225
Lime/Lemon	0	0	0	24	24
Durian	0	12	0	0	12
Rambutan	0	0	0	0	0
Total	4,099	979	463	19,007	24,547

cont... Planted Area with Fertilizer by Fertilizer Type and Crop

Crop	Mostly Farm Yard Manure	Total	%
Orange	48	49	98.6
Banana	1,119	1,786	62.7
Pawpaw	172	312	55.1
Grape	41	92	44.4
Sugarcane	145	598	24.2
Mango	104	669	15.6
Pigeon Pea	2,383	19,678	12.1
Guava	87	1,225	7.1
Rubber Vine Fruit	0	104	0.0
Nutmeg	0	0	0.0
Mandarine/Tangerine	0	0	0.0
Lime/Lemon	0	24	0.0
Durian	0	12	0.0
Rambutan	0	0	0.0
Total	4,099	24,547	16.7

cont... Planted Area with Fertilizer by Fertilizer Type and Crop

Crop	Mostly Inorganic Fertilizer	Total	%
Pigeon Pea	463	19,678	2
Rubber Vine Fruit	0	104	0
Malay Apple	0	0	0
Sugarcane	0	598	0
Nutmeg	0	0	0
Banana	0	1,786	0
Mango	0	669	0
Pawpaw	0	312	0
Orange	0	49	0
Grape	0	92	0
Mandarine/Tangerine	0	0	0
Guava	0	1,225	0
Lime/Lemon	0	24	0
Durian	0	12	0
Rambutan	0	0	0
Total	463	24,547	2

AGROPROCESSING

8.1.1a AGRO PROCESSING: Number of Crop Growing Households Reporting Processing of Farm Products Produced During 2002/03 Agricultural Year by Use of Product and Crop, Lindi Region

Crop	Product Use							Total
	Household / Human Consumption	Fuel for Cooking	Sale Only	Animal Consumption	Did Not Use	Other		
Maize	104,473	0	97	0	79	103	104,753	
Paddy	20,999	96	83	0	132	0	21,310	
Sorghum	55,850	0	0	101	136	209	56,295	
Bulrush Millet	275	0	0	0	0	0	275	
Finger Millet	464	0	0	0	0	0	464	
Cassava	70,575	0	123	0	289	0	70,987	
Cowpeas	2,528	0	161	0	0	0	2,689	
Green Gram	28	0	0	0	0	0	28	
Pigeon Peas	3,143	0	28	0	0	103	3,274	
Bambaranut	106	0	0	0	0	0	106	
Simsim	168	0	489	0	0	29	685	
Groundnut	311	0	166	0	0	0	477	
Oil Palm	80	0	0	0	0	0	80	
Coconut	3,466	0	81	0	104	0	3,651	
Cashewnut	67	0	0	0	87	0	154	
Banana	98	0	0	0	0	0	98	
Total	262,629	96	1,228	101	827	443	265,325	

8.1.1b AGRO PROCESSING: Number of Crop Growing Households Reporting Processing of Farm Products Produced During 2002/03 Agricultural Year by Location of Sale of Product and Crop, Lindi Region

Crop	Where Sold								Total
	Neighbours	Local Market / Trade Store	Marketing Co-operative	Farmers Association	Large Scale Farm	Trader at Farm	Other	Did not Sell	
Maize	2,299	106	201	159	232	88	2,337	99,331	104,753
Paddy	1,242	0	103	0	0	56	327	19,581	21,310
Sorghum	757	0	255	28	103	29	961	54,162	56,295
Bulrush Millet	0	0	0	0	0	0	0	275	275
Finger Millet	0	0	0	0	0	0	0	464	464
Cassava	2,140	81	87	0	207	94	2,052	66,327	70,987
Cowpeas	323	0	0	0	0	134	0	2,232	2,689
Green Gram	0	0	0	0	0	0	0	28	28
Pigeon Peas	28	0	0	0	0	0	86	3,160	3,274
Bambaranut	0	0	0	0	0	0	0	106	106
Simsim	0	407	0	0	0	81	0	197	685
Groundnut	191	0	0	0	0	57	0	229	477
Oil Palm	0	0	0	0	0	0	0	80	80
Coconut	81	0	0	0	0	0	81	3,488	3,651
Cashewnut	0	0	0	0	0	0	0	154	154
Banana	0	0	0	0	0	0	0	98	98
Total	7,062	594	646	186	542	539	5,843	249,912	265,325

8.1.1c AGRO PROCESSING: Number of Crop Growing Households By Main Product and District During 2002/03 Agriculture Year, Lindi Region

District	Main Product							Total
	Flour / Meal	Grain	Oil	Juice	Fiber	Rubber	Other	
Kilwa	15,315	7,072	161	0	0	0	0	22,548
Lindi Rural	31,565	8,260	803	199	0	0	0	40,826
Nachingwea	33,165	609	0	0	85	88	0	33,947
Liwale	9,073	895	0	0	0	0	0	9,968
Ruangwa	24,257	1,367	0	0	0	0	135	25,760
Lindi Urban	2,008	491	0	0	0	0	0	2,499
Total	115,383	18,694	964	199	85	88	135	135,549

8.1.1d AGRO PROCESSING: Number of Crop Growing Households By Use of Primary Processed Product and District During 2002/03 Agriculture Year, Lindi Region

District	Product Use					Total
	Household / Human Consumption	Fuel for Cooking	Sale Only	Did Not Use	Other	
Kilwa	22,390	0	0	158	0	22,548
Lindi Rural	40,425	96	0	202	103	40,826
Nachingwea	33,947	0	0	0	0	33,947
Liwale	9,885	0	83	0	0	9,968
Ruangwa	25,691	0	69	0	0	25,760
Lindi Urban	2,499	0	0	0	0	2,499
Total	134,837	96	152	360	103	135,549

8.1.1e: Number of Crop Growing Households Reported to have Processed Products by District; 2002/03 Agriculture Year

	Households That		Households That did not		Total	
	Number	%	Number	%	Number	%
Kilwa	22,548	72	8,829	28	31,377	100
Lindi Rural	40,826	91	4,027	9	44,853	100
Nachingwea	33,947	97	1,220	3	35,167	100
Liwale	9,968	88	1,396	12	11,365	100
Ruangwa	25,760	95	1,463	5	27,222	100
Lindi Urban	2,499	78	690	22	3,189	100
Total	135,549	88	17,625	12	153,173	100

8.1.1f Number of Crop Growing Households by Method of Processing and District; 2002/03 Agricultural Year

District	Method of Processing								Total
	On Farm by Hand	On Farm by Machine	By Neighbour Machine	By Farmers Association	By Co-operative Union	By Trader	On Large Scale Farm	By Factory	
Kilwa	18,519	78	3,870	0	0	0	0	80	22,548
Lindi Rural	25,399	5,240	9,165	0	0	919	103	0	40,826
Nachingwea	4,684	175	27,602	0	88	1,399	0	0	33,947
Liwale	4,482	564	4,638	0	29	256	0	0	9,968
Ruangwa	4,744	268	16,610	412	205	3,521	0	0	25,760
Lindi Urban	1,930	150	280	0	0	140	0	0	2,499
Total	59,757	6,475	62,165	412	321	6,235	103	80	135,549

8.1.1g AGRO PROCESSING: Number of Crop Growing Households Processing Crops During 2002/03 Agricultural Year by Location and Crop, Lindi Region

Crop	Method of Processing						Total
	On Farm by Hand	On Farm by Machine	By Neighbour Machine	By Trader	On Large Scale Farm	Other	
Maize	2,715	2,703	17,770	0	91	297	23,576
Paddy	0	0	101	0	0	0	101
Sorghum	705	301	3,364	0	0	0	4,371
Bulrush Millet	3,511	2,004	19,486	0	98	697	25,796
Cassava	403	0	300	0	0	0	703
Beans	101	0	0	0	0	0	101
Cowpeas	1,205	0	201	0	0	0	1,406
Bambaranut	2,912	95	0	0	0	780	3,787
Groundnut	10,426	101	698	0	0	1,586	12,810

8.1.1h AGRO PROCESSING: Number of Crop Growing Households By Where Product Sold and District During 2002/03 Agriculture Year, Lindi Region

District	Where Sold								Total
	Neighbours	Local Market / Trade Store	Marketing Co-operative	Farmers Association	Large Scale Farm	Trader at Farm	Other	Did not Sell	
Kilwa	876	0	0	0	0	0	323	21,349	22,548
Lindi Rural	418	106	201	0	207	0	518	39,377	40,826
Nachingwea	1,136	0	0	0	0	88	2,308	30,416	33,947
Liwale	224	0	0	55	26	0	27	9,637	9,968
Ruangwa	671	0	0	0	0	0	0	25,089	25,760
Lindi Urban	0	0	0	0	0	0	0	2,499	2,499
Total	3,324	106	201	55	233	88	3,175	128,366	135,549

8.1.1i AGRO PROCESSING: Number of Crop Growing Households By type of By-Product and District During 2002/03 Agriculture Year, Lindi Region

District	By Product							Total
	Bran	Cake	Husk	Fiber	Pulp	Shell	No by-product	
Kilwa	11,084	323	2,575	0	0	0	8,566	22,548
Lindi Rural	20,000	1,603	4,358	106	0	288	14,470	40,826
Nachingwea	13,260	175	2,005	0	783	261	17,463	33,947
Liwale	6,810	0	448	0	0	112	2,598	9,968
Ruangwa	10,577	0	205	0	0	413	14,564	25,760
Lindi Urban	1,595	69	36	0	0	0	799	2,499
Total	63,326	2,170	9,628	106	783	1,075	58,461	135,549

MARKETING

10.1: Number of Crop Producing Households Reported to have Sold Agricultural Produce by District During 2002/03; Lindi Region

District	Households that Sold		Did not Sell		Total Number of households
	Number	%	Number	%	
Kilwa	23,300	74.3	8,076	25.7	31,377
Lindi Rural	28,778	64.2	16,075	35.8	44,853
Nachingwea	26,221	74.6	8,945	25.4	35,167
Liwale	9,801	86.2	1,564	13.8	11,365
Ruangwa	18,466	67.8	8,756	32.2	27,222
Lindi Urban	1,429	44.8	1,761	55.2	3,189
Total	107,996	70.5	45,178	29.5	153,173

10.2: Number of Households who Reported Main Reasons for Not Selling their Crops by District During 2002/03 Agricultural Year, Lindi Region

District	Main Reasons for Not Selling Crops											Total
	Open Market Price Too Low	No Transport	Transport Cost Too High	No Buyer	Market too Far	Co-operative Problems	Trade Union Problems	Government Regulatory Board Problems	Lack of Market Information	Other	Not applicable	
Kilwa	1,862	79	81	0	152	79	0	0	0	0	21,048	23,300
Lindi Rural	6,726	311	776	724	103	0	104	0	210	0	19,825	28,778
Nachingwea	4,797	88	175	0	88	0	0	175	175	348	20,376	26,221
Liwale	1,163	28	0	0	114	0	0	27	28	0	8,440	9,801
Ruangwa	3,609	0	0	0	0	65	0	0	0	0	14,792	18,466
Lindi Urban	72	0	0	0	0	0	0	0	0	0	1,357	1,429
Total	18,230	506	1,032	724	456	143	104	202	413	348	85,838	107,996

10.3 Proportion of Households who Reported Main Reason for Not Selling Their Crops by District during 2002/03 Agricultural Year, Lindi Region

District	Main Reasons for Not Selling Crops											Total
	Open Market Price Too Low	No Transport	Transport Cost Too High	No Buyer	Market too Far	Co-operative Problems	Trade Union Problems	Government Regulatory Board Problems	Lack of Market Information	Other	Not applicable	
Kilwa	1.72	0.07	0.07	0.00	0.14	0.07	0.00	0.00	0.00	0.00	19.49	21.58
Lindi Rural	6.23	0.29	0.72	0.67	0.09	0.00	0.10	0.00	0.19	0.00	18.36	26.65
Nachingwea	4.44	0.08	0.16	0.00	0.08	0.00	0.00	0.16	0.16	0.32	18.87	24.28
Liwale	1.08	0.03	0.00	0.00	0.11	0.00	0.00	0.02	0.03	0.00	7.81	9.08
Ruangwa	3.34	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	13.70	17.10
Lindi Urban	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.26	1.32
Total	16.88	0.47	0.96	0.67	0.42	0.13	0.10	0.19	0.38	0.32	79.48	100.00

District	Main Reasons for Not Selling Crops									
	Price Too Low	Production Insufficient to Sell	Market Too Far	Farmers Association Problems	Co-operative Problems	Trade Union Problems	Government Regulatory Board Problems	Other	Not applicable	Total
Kilwa	79	6,977	0	0	72	375	0	2,011	21,466	30,980
Lindi Rural	318	15,314	99	209	0	0	307	2,606	25,798	44,651
Nachingwea	0	8,069	0	0	88	438	0	1,398	23,612	33,605
Liwale	85	1,577	28	0	57	114	0	243	8,175	10,280
Ruangwa	131	8,635	0	0	0	0	139	536	17,507	26,947
Lindi Urban	37	1,258	0	0	0	0	0	358	1,536	3,189
Total	651	41,830	127	209	216	927	445	7,152	98,094	149,653

IRRIGATION/EROSION CONTROL

11.1 Number and Percent of Households Reporting use of irrigation during 2002/03 Agricultural year by District

District	Households Practicing Irrigation		Households not Practicing Irrigation		Total	
	Number of Household	%	Number of Household	%	Number of Household	%
Kilwa	386	1.2	30,991	98.8	31,377	100
Lindi Rural	1,235	2.8	43,618	97.2	44,853	100
Nachingwea	176	0.5	34,991	99.5	35,167	100
Liwale	426	3.7	10,939	96.3	11,365	100
Ruangwa	680	2.5	26,543	97.5	27,222	100
Lindi Urban	0	0.0	3,189	100.0	3,189	100
Total	2,902	1.9	150,271	98.1	153,173	100

11.2 IRRIGATION: Area (ha) of Irrigatable and NON irrigated land by district during 2002/03 agriculture year

District	Irrigatable Area (ha)	Irrigated Land (ha)	%
Kilwa	191	176	92.4
Lindi Rural	590	431	73.0
Nachingwea	7	7	100.0
Liwale	278	227	81.7
Ruangwa	16863	118	0.7
Lindi Urban	.	.	0.0
Total	17929	959	5.4

11.3: IRRIGATION: Number of Agriculture Households using irrigation by Source of Irrigation Water by districts during the 2002/03 agricultural Year

District	Source of Irrigation Water					Total
	River	Lake	Dam	Well	Canal	
Kilwa	162	81	0	144	0	386
Lindi Rural	1029	0	0	0	207	1235
Nachingwea	0	0	0	176	0	176
Liwale	312	0	28	57	29	426
Ruangwa	67	0	0	547	66	680
Total	1569	81	28	923	301	2902
Total	2,730	98	417	4,533	129	1,162

11.4: IRRIGATION: Number of Agriculture Households by Method used to obtain water and District during 2002/03 Agricultural Year

District	Method of Obtaining Water				Total
	Gravity	Hand Bucket	Motor Pump	Other	
Kilwa	242	144	0	0	386
Lindi Rural	727	508	0	0	1,235
Nachingwea	0	176	0	0	176
Liwale	197	228	0	0	426
Ruangwa	0	474	137	69	680
Total	1,167	1,530	137	69	2,902

11.5 IRRIGATION: Number of Agriculture Households by Method of Field Application of Irrigation Water and District for the 2002/03 Agricultural Year

District	Method of Application			Total
	Flood	Sprinkler	Bucket / Watering Can	
Kilwa	242	0	144	386
Lindi Rural	727	0	508	1,235
Nachingwea	0	0	176	176
Liwale	197	0	228	426
Ruangwa	0	69	611	680
Total	1,167	69	1,667	2,902

11.6: Number of Households with Erosion Control/Water Harvesting Facilities on their Land By District

District	Presence of Erosion Control/Water Harvesting Facilities				Number of Households
	Have Facility		Does Not Have Facility		
	Number	%	Number	%	
Kilwa	0	0	31,377	100	31,377
Lindi Rural	207	0.5	44,646	99.5	44,853
Nachingwea	608	1.7	34,559	98.3	35,167
Liwale	114	1.0	11,251	99.0	11,365
Ruangwa	68	0.3	27,154	99.7	27,222
Lindi Urban	0	0	3,189	100	3,189
Total	998	0.7	152,175	99.3	153,173

11.7 EROSION CONTROL: Number of Erosion Control/Water Harvesting Structures By Type and District as of 2002/03 Agricultural Year

District	Type of Erosion Control				Total
	Erosion Control Bunds	Gabions / Sandbag	Vetiver Grass	Drainage Ditches	
Lindi Rural	0	207	0	103	310
Nachingwea	31,630	0	0	0	31,630
Liwale	114	0	86	0	200
Ruangwa	2,053	0	0	0	2,053
Total	33,797	207	86	103	34,193

Table 12.2.15 ACCESS TO EQUIPMENT: Number of Agricultural Households Owning OX Plough by Source of Finance and District

District	Other Income Generating Activities		Total	
	Number	%	Number	%
Lindi Rur	96.19541667	100	96.195417	100
Total	96.19541667	100	96.195417	100

Table 12.2.16 ACCESS TO EQUIPMENT: Number of Agricultural Households Owning TRACTOR by Source of Finance and District

District	Sale of Farm Products		Total	
	Number	%	Number	%
Ruangwa	62.24662309	100	62.246623	100
Total	62.24662309	100	62.246623	100

AGRICULTURE CREDIT

13.1a AGRICULTURE CREDIT: Number of Agriculture Households receiving Credit by sex of household head and District During the 2002/03 Agriculture Year

District	Male		Female		Total
	Number	%	Number	%	
Lindi Rural	100	50	101	50	201
Nachingwea	85	100	0	0	85
Liwale	84	75	28	25	112
Ruangwa	137	100	0	0	137
Total	405	76	130	24	535

13.1b AGRICULTURE CREDIT: Number of Households Receiving Credit By Main Source of Credit and District; 2002/03 Agriculture Year.

District	Source of Credit					Total
	Family, Friend and Relative	Co-operative	Private Individual	Religious Organisation / NGO / Project	Other	
Lindi Rural	100	0	101	0	0	201
Nachingwea	0	85	0	0	0	85
Liwale	0	0	0	84	28	112
Ruangwa	68	69	0	0	0	137
Total	168	154	101	84	28	535

TREE FARMING AND AGROFORESTRY

CROP EXTENSION

ANIMAL CONTRIBUTION TO CROP PRODUCTION

CATTLE PRODUCTION

18.5 CATTLE PRODUCTION: Number of Improved Beef Cattle By Category and District as on 1st October, 2003

District	Category - Improved Beef Cattle					Total
	Bulls	Cows	Heifers	Male Calves	Female Calves	
Lindi Rural
Nachingwea
Lindi Urban	64	64
Total	64	64

18.6 CATTLE PRODUCTION: Number of Improved Dairy Cattle By Category and District as on 1st October, 2003

District	Category - Improved Dairy Cattle					Total
	Bulls	Cows	Heifers	Male Calves	Female Calves	
Lindi Rural	.	101	.	101	202	405
Nachingwea	87	87	87	.	87	348
Lindi Urban	.	105	35	36	69	245
Total	87	293	122	137	358	998

18.7 CATTLE PRODUCTION: Number of Cattle By Category and District as on 1st October, 2003

District	Total Cattle					Total
	Bulls	Cows	Heifers	Male Calves	Female Calves	
Lindi Rural	100	400	299	201	302	1,300
Nachingwea	175	175	175	.	175	700
Lindi Urban	64	412	294	103	208	1,080
Total	339	987	767	303	685	3,080

GOATS PRODUCTION

19.6 Number of Improved Dairy Goat by Category and District on 1st October, 2003

District	Number of Improved Dairy Goats					
	Billy Goat	Castrated Goat	She Goat	Male Kid	She Kid	Total
Kilwa	569	.	651	144	.	1,364
Lindi Rural	201	202	811	201	201	1,616
Nachingwea	.	526	.	.	.	526
Liwale	.	.	56	56	.	112
Ruangwa	.	.	.	69	69	139
Lindi Urban	105	.	35	.	.	140
Total	874	728	1,553	470	270	3,896

19.7 Total Number of Goats by Category and District on 1st October, 2003

District	Total Goat					
	Billy Goat	Castrated Goat	She Goat	Male Kid	She Kid	Total
Kilwa	3,425	488	10,299	2,814	3,505	20,531
Lindi Rural	7,364	618	20,053	6,205	8,518	42,758
Nachingwea	3,561	613	8,975	3,740	1,918	18,807
Liwale	557	244	4,142	884	688	6,515
Ruangwa	1,889	.	6,489	1,979	1,843	12,200
Lindi Urban	1,535	160	4,937	1,466	1,596	9,694
Total	18,331	2,124	54,895	17,088	18,067	110,505

SHEEP PRODUCTION

20.5 Total Number of Indigenous Sheep by Sheep Type and District on 1st October 2003

District	Number of Indigenous Sheep					Total
	Ram	Castrated Sheep	She Sheep	Male Lamb	She Lamb	
Lindi Rural	595	106	1,611	503	1,349	4,165
Nachingwea	439	.	1,055	352	439	2,285
Liwale	57	.	450	109	310	926
Ruangwa	615	.	2,380	341	341	3,678
Lindi Urban	64	.	416	72	.	552
Total	1,771	106	5,912	1,377	2,440	11,607

20.6 Total Number of Improved Mutton Sheep by Type and District on 1st October 2003

District	Number of Improved for Mutton					Total
	Ram	Castrated Sheep	She Sheep	Male Lamb	She Lamb	
Lindi Rural	.	.	100	100	100	299
Nachingwea
Liwale
Ruangwa
Lindi Urban
Total	.	.	100	100	100	299

20.8 Total Number of Sheep by Sheep Type and District on 1st October 2003

District	Total Sheep					Total
	Ram	Castrated Sheep	She Sheep	Male Lamb	She Lamb	
Lindi Rural	595	106	1,711	603	1,449	4,464
Nachingwea	439	.	1,055	352	439	2,285
Liwale	57	.	450	109	310	926
Ruangwa	615	.	2,380	341	341	3,678
Lindi Urban	64	.	416	72	.	552
Total	1,771	106	6,012	1,476	2,540	11,905

PIGS PRODUCTION

21.1 Number of Households and Pigs by Herd Size on 1st October 2003

Herd Size	Pig Rearing Households		Heads of Pigs		Average Number Per Household
	Number	%	Number	%	
1-4	991	70	2,204	44	2
5-9	415	30	2,752	56	7
Total	1,407	100	4,956	100	4

21.2 Number of Households and Pigs by District on 1st October 2003

District	Number of Household	Number of Pig	Average Number Per Household
Nachingwea	1,133	4,000	4
Ruangwa	274	956	3
Total	1,407	4,956	4

21.3 Number of Pigs by Type and District on 1st October, 2003

District	Boar	Castrated Male	Sow / Gilt	Male Piglet	She Piglet	Total
Nachingwea	1,305	0	1,132	1,041	522	4,000
Ruangwa	342	.	137	204	273	956
Total	1,647	0	1,268	1,245	795	4,956

LIVESTOCK PESTS AND PARASITE CONTROL

OTHER LIVESTOCK

FISH FARMING

LIVESTOCK EXTENSION

ACCESS TO INFRASTRUCTURE AND OTHER SERVICES

HOUSEHOLD FACILITIES

APPENDIX III QUESTIONNAIRES

UNITED REPUBLIC OF TANZANIA



Confidential

National Agriculture Sample Census 2002/03

ACLF: 3 Household listing of 15 selected farmers

Region _____
 District _____
 Ward _____
 Village _____

Code
 Code
 Code
 Code






S/N	Sub village leader number		Name of sub-village leader	Agriculture hh serial number	Name of selected head of household	Number of							
	(1)	(2)				(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
01				<input type="text"/> <input type="text"/> <input type="text"/>									
02				<input type="text"/> <input type="text"/> <input type="text"/>									
03				<input type="text"/> <input type="text"/> <input type="text"/>									
04				<input type="text"/> <input type="text"/> <input type="text"/>									
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09				<input type="text"/> <input type="text"/> <input type="text"/>									
10				<input type="text"/> <input type="text"/> <input type="text"/>									
11				<input type="text"/> <input type="text"/> <input type="text"/>									
12				<input type="text"/> <input type="text"/> <input type="text"/>									
13				<input type="text"/> <input type="text"/> <input type="text"/>									
14				<input type="text"/> <input type="text"/> <input type="text"/>									
15				<input type="text"/> <input type="text"/> <input type="text"/>									

Name of Enumerator: _____ Signature _____ Date _____

Name of Supervisor _____ Signature _____ Date _____

Ministry of Agriculture and Food Security, Ministry of Water and Livestock Development, Ministry of
 Cooperatives and Marketing and the National Bureau of Statistics

United Republic of Tanzania	
ACQ 1	
CONFIDENTIAL	
Small holder/Small Scale Farmer Questionnaire	
Agriculture Sample Census	
2002/2003	
	

Enumerator	Name	Signature																			
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d	d		m	m		y	y														
Date Enumerated		End time	<table border="1" style="width: 40px; height: 20px; margin: auto;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table>																		
Field level checking by:			<i>To be completed by the supervisor ONLY after field/farm level checking of the enumeration process. This should be countersigned by the enumerator.</i>																		
District Supervisor:	Name	signature																			
Regional Supervisor:	Name	signature																			
National Supervisor:	Name	signature																			
District checking in Office:			<i>All questionnaires must be checked at the district office.</i>																		
District Supervisor	Name	signature																			
For Use at National Level only:			<i>See back page for details of query</i>																		
Data Entered by	Name	signature																			
Queried	Name	signature																			

Executed by the Ministry of Agriculture and Food Security, Ministry of Water and Livestock Development,
 Ministry of Cooperatives and Marketing
 and
 National Bureau of Statistics

1.0 IDENTIFICATION DETAILS			
1.1 Location			
S/N	Location Name	Codes	
1.1.1	Region	<input type="text"/> <input type="text"/>	
1.1.2	District	<input type="text"/>	
1.1.3	Ward	<input type="text"/> <input type="text"/> <input type="text"/>	
1.1.4	Village	<input type="text"/> <input type="text"/>	
1.2 Details of the respondent and household head			
S/N		Codes	
1.2.1	Name & number of local leader	<input type="text"/> <input type="text"/> <input type="text"/>	
1.2.2	Name & number of household head	<input type="text"/> <input type="text"/>	
1.2.3	Sex of household head (Male = 1, Female = 2)	<input type="text"/> <input type="text"/>	
1.2.4	Name of respondent	/	
1.2.5	Relationship of Respondent to Household Head		
<p>Relationship to household head codes (Q 1.2.5) Head of Household.....1 Son/Daughter3 Grandson/Granddaughter5 Other (friend, employee, etc)...8 Spouse2 Father/Mother4 Other relative.....6</p>			
2.0 ACTIVITIES OF THE HOUSEHOLD			
2.1	Type of Agriculture Household	<input type="text"/>	
<p>Agriculture household codes(Q2.1) Crops only.....1 Livestock only2 Pastoralist.....3 Crops and Livestock4</p>			
2.2	Rank the following livelihood activities/source of income of the household in order of importance		
S/N	Livelihood/source of income activity.	Rank in order of importance 1=most 7=least	How important are each of these activities expressed in percentage.
	(1)	(2)	(3)
2.2.1	Annual Crop farming	<input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> %
2.2.2	Permanent crop farming	<input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> %
2.2.3	Livestock keeping/herding	<input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> %
2.2.4	Off Farm Income	<input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> %
2.2.5	Remittances	<input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> %
2.2.6	Fishing/hunting and gathering	<input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> %
2.2.7	Tree/forest resources (eg honey, firewood, timber,etc)	<input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/> %
			<input type="text"/> <input type="text"/> <input type="text"/> %

Definition and working page for page 8**Question Specific definitions (Section 9.0)****Crop Storage, Section 9****Method of Storage (column 4)**

- **Locally made structure:** The structures that have been inherited from their fore fathers
- **Improved locally made structure:** Traditional structures that have been improved using modern technology.
- **Normal duration of storage:** Often there are stored stocks from different seasons and different years. The normal duration refers to the number of months that the most of the crop is stored for.

Marketing problems Q 10.2 and 10.3 col 2:

- **Farmer Association:** A village or community based group of farmers who have formed an organisation to purchase inputs/sell/store their products in order to achieve a better price for their products.
- **Cooperative Union:** Large inter-village /community organisation set up on a district/regional or national basis for providing inputs, marketing and storing farmers products.
- **Government Regulatory board:** Government control body for setting prices and controlling quality of certain agriculture commodities.

Procedures for Questions**Q 9.2 Details of Crop Storage:**

1. For the crops listed indicate if the household stored any during 2002/03 in column 2.
2. Check that the crops correspond to the crop lists in Q 7.1.2, 7.2.2 & 7.3.2. If there is a difference inquire on the reason why. It is possible that a crop was missed during the enumeration of these questions and if so make necessary amendments
3. For the listed crops give details of storage.

Q 10.2 Details on Crop Marketing:

1. For each of the crops listed indicate the main problems in marketing during 2002/03 in column 2.
2. Check if the crops correspond to the crop lists list in Q 7.1.2, 7.2.2 & 7.3.2. If there is a difference inquire on the reason why. It is possible that a crop was missed during the enumeration of these questions and if so make necessary amendments

Q 10.3 Ranking of market problems:

Rank in order of importance the 5 most important marketing problems from the codes in the Market Problems code box.

Working Area/calculation space

Definition and working page for page 10

Question Specific Definitions (Q 12.2)

Farm Implements (Col 1):

Hand powered Sprayer: Knapsack or bicycle pump sprayer

Reason for not using (Col 6): Be careful about using "too much labour required" as this code generally refers to hand hoes only. The codes for this should "**NOT**" be read out to the farmer as a prompt.

Note: If remittance is given as the main source of finance check for a response to remittances in **question 2.2.5**

Question Specific Definitions (Q 13.0)

Section 13.0 Credit for Agriculture Purposes

Credit is defined as finance in the form of cash or in-kind contributions (eg direct provision of inputs, machinery, livestock or other material) for the purpose of crop and livestock production whereby the value of the credit must be paid back to the borrower. The value of repayment may either be with interest or interest free.

Credit may be paid back in the form of cash or agriculture produce.

Section 13.0 Credit for Agriculture Purposes

Value of credit: is the amount in cash received from the borrower. If the credit was paid in-kind, estimate the value of this.

Value of repayment: This is the amount to be repaid to the borrower and includes the principal amount (value of credit) plus any interest repayment. If the credit is paid back in agriculture produce, then the cash value of this must be estimated.

Period of repayment: This is the time in **months** the borrower has given for full repayment.

Procedures for questions

Q 12.0 Farm Inputs

1. Indicate in column 2 and 3 whether each of the implements were used or not.
2. Complete cols 4, 5, 6, and 8 for inputs that are used and place '9' in column 7 (for not applicable).
3. Complete cols 7 & 8 for inputs not used.

Section 13.2 Source of agriculture credit

If the farmer obtained credit from more than one source then use the columns "a", "b" and "c" for the different sources of credit. Start with the main source of credit in column "a".

NOTE: Check for use of inputs in column 7, 8 & 9 of questions 7.1.2, 7.2.2 & 7.3.2.

Working Area/calculation space

Definitions and working page for page 12

Question Specific Definitions

Crop Extension Advice (Section 15.2)

Mechanisation/LST: LST means Labour Saving Technology

Section 16.0 Livelihood constraints

16.1 List the five most important problems in order of most importance:

1. Read out the list of constraints to the respondent and ask him to select the ones that are a problem. Place a ✓ against the constraints that are a problem.
2. Read the selected constraints and ask the farmer to select 5 which create the largest problems
3. Ask the farmer to list these in order of importance and enter in column 2

16.2 List the five least important problems in order of least importance:

1. Read out the list of constraints to the respondent and ask him to select the ones that are **NOT** a problem. Place an ✗ against the constraints that are **NOT** a problem.
2. Read the selected constraints and ask the farmer to select 5 which create the least problems
3. Ask the farmer to list these in order of least importance and enter in column 2

Definitions and working page for page 13**General definitions for page 13**

Cattle Intake during 2002/03: Cattle purchased, given or born which increases the number of cattle in the herd.

Cattle Offtake during 2002/03:

Cattle removed from the herd, either by selling, hh consumption, given away or stolen.

Question Specific Definitions (Section 18.0)**Cattle type (Q 18.2 & 18.4, Col 1)**

Bull: Mature **Uncastrated** male cattle used for breeding

Cow: Mature female cattle that has given birth at least once

Steer: Castrated male cattle over 1 year

Heifer: Female cattle of 1 year up to the first calving

Calves: Young cattle under 1 year of age

Average Value per Head (Q 18.3, (Col 7 & 9) & 18.4 (Col 3, 5 & 7))

In these columns give the average value per head during 2002/03. For given, traded, consumed by the hh & given away/stolen estimate the value.

Cattle vaccination (18.5 col 1)

ECF: East Coast Fever

FMD: Foot and Mouth Disease

CBPP: Contagious Bovine Pleura Pneumonia

Section 18.0 Cattle Population, Intake & Offtake.

NOTE: Section 18.1 is for the current population (as of 1st October 2003);
Section 18.2 and 18.3 is for movement in and out of the herd
during the 2002/03 agriculture year.
Section 18.4 is for diseases encountered during the agriculture year.

1. If the household has cows, you would normally expect them to have calves in column 8
2. If calves are reported in column 2, 3, or 4 (18.2.6, 18.2.5) then there must be at least that number repeated in column 8

Note: If the farmer reports sales of cattle the importance of this must be reflected in Q 2.2.3

Section 18.5 If cattle are reported to have died in Column 5 then at least that number should be reported in 18.4 col 4

Working area for page 13

Definitions and working page for page 14**Goat definitions for page 14**

Goat Intake during 2002/03: Goat purchased, given or born which increases the number of goats in the herd.

Goat Offtake during 2002/03:

Goat removed from the herd, either by selling, hh consumption, given away or stolen.

Question Specific Definitions (Section 19.0)**Goat type (Q 19.2 & 19.4, Col 1)**

Billy Goat (he-goat): Mature **Uncastrated** male goat used for breeding

Castrated goat: Male goat that has been castrated.

She Goat: Mature female goat over 9 months of age

Kid: Young goat under 9 months of age.

Average Value per Head (Q 19.3, (Col 7 & 9) & 19.4 (Col 3, 5 & 7))

In these columns give the average value per head during 2002/03. For given, traded, consumed by the hh & given away/stolen estimate the value.

Goat vaccination (19.5 col 1)

FMD: Foot and Mouth Disease

CCPP: Contagious Caprine Pleura Pneumonia

LSD: Lumpy Skin Disease

Section 19.0 Goat Population, Intake & Offtake.

NOTE: Section 19.1 is for the current population (as of 1st October 2003); Section 19.2 and 18.3 is for movement in and out of the herd during the 2002/03 agriculture year. Section 19.4 is for diseases encountered during the agriculture year.

1. If the household has she goats, you would normally expect them to have kids in column 8
2. If kids are reported in column 2, 3, or 4 (19.2.6, 19.2.5) then there must be at least that number repeated in column 8

Note: If the farmer reports sales of goats the importance of this must be reflected in Q 2.2.3

Section 19.5 If goats are reported to have died in Column 5 then at least that number should be reported in 19.4 col 4

Working area for page 14

Definitions and working page for page 15**Sheep definitions for page 15**

Sheep Intake during 2002/03: Sheep purchased, given or born which increases the number of Sheep in the herd.

Sheep Offtake during 2002/03:
Sheep removed from the herd, either by selling, hh consumption, given away or stolen.

Question Specific Definitions (Section 20.0)**Sheep type (Q 20.2 & 20.4, Col 1)**

Ram: Mature **Uncastrated** male goat used for breeding

Castrated sheep: Male sheep that has been castrated.

Ewe: Mature female sheep over 9 months of age

Lamb: Young sheep under 9 months of age.

Average Value per Head (Q 20.3, (Col 7 & 9) & 20.4 (Col 3, 5 & 7))

In these columns give the average value per head during 2002/03. For given, traded, consumed by the hh & given away/stolen estimate the value.

Sheep vaccination (20.5 col 1)

FMD: Foot and Mouth Disease

CCPP: Contagious Caprine Pleura Pneumonia

Section 20.0 Sheep Population, Intake & Offtake.

NOTE: Section 20.1 is for the current population (as of 1st October 2003);
Section 20.2 and 20.3 is for movement in and out of the herd during the 2002/03 agriculture year.
Section 20.4 is for diseases encountered during the agriculture year.

1. If the household has ewes, you would normally expect them to have kids in column 8
2. If lambs are reported in column 2, 3, or 4 (20.2.6, 20.2.5) then there must be at least that number repeated in column 8

Note: If the farmer reports sales of Sheep the importance of this must be reflected in Q 2.2.3

Section 20.5 If Sheep are reported to have died in Column 5 then at least that number should be reported in 20.4 col 4

Working area for page 15

|

Definitions and working page for page 16**Pigs definitions for page 16**

Pig Intake during 2002/03: Pigs purchased, given or born which increases the number of Pigs in the production unit.

Pig Offtake during 2002/03:

Pigs removed from the production unit, either by selling, hh consumption, given away or stolen.

Question Specific Definitions (Section 21.0)**Pigs type (Q 21.2 & 21.4, Col 1)**

Boar: Mature **Uncastrated** male pig used for breeding

Castrated Pig: Male pig that has been castrated.

Sow: Mature female pig that has given birth to at least one litter of pigs.

Gilt: Female pig of 9 months up to the first farrowing.

Piglet: Young pig under 3 months of age.

Average Value per Head (Q 21.3, (Col 7 & 9) & 21.4 (Col 3, 5 & 7))

In these columns give the average value per head during 2002/03. For given, traded, consumed by the hh & given away/stolen estimate the value.

Pig vaccination (21.5 col 1)

ASF: African Swine Fever

Section 21.0 Pig Population, Intake & Offtake.

NOTE: Section 21.1 is for the current population (as of 1st October 2003); Section 21.2 and 21.3 is for movement in and out of the herd during the 2002/03 agriculture year. Section 21.4 is for diseases encountered during the agriculture year.

1. If the household has sows, you would normally expect them to have piglets in column 8
2. If piglets are reported in column 2, 3, or 4 (20.2.6, 20.2.5) then there must be at least that number repeated in column 8

Note: If the farmer reports sales of Pigs the importance of this must be reflected in Q 2.2.3

Section 20.5 If Pigs are reported to have died in Column 5 then at least that number should be reported in 20.4 col 4

Working area for page 16

|

Definition and working page for page 17

Question Specific Definitions Section 26.0)

Procedures for questions

Section 23.0 - Other Livestock:

1. The current number includes both adult and young animals. For example The number of chickens in col 1 would include adults and chicks.

Question Specific Definitions Section 27.0)

Access to functional Livestock Structures/accessories (Section 27.0):

NOTE: The structures must be functional. If they are not working/derelect then they should not be included. The distance to the next nearest functional structure should be taken.

Spray Race: A fixed spray structure on an animal race for spraying acaricide

Cattle crush: Corridor structure for restraining cattle.

Abattoir: Large building designed for slaughtering a large amount of animals. It normally has complex structures to assist in the slaughter and storage and a high level of hygiene is maintained.

Slaughter Slab: Concrete slab designed for slaughtering a small amount of animals

Hides: obtained from Cattle

Skins: Obtained from sheep and goats

Hide/Skin Shed: Shed for curing/tanning animal skins and hides

Village holding Pen: Enclosure for containing large amount of livestock which is owned communally.

Drencher: Device for orally administering medicine to livestock. If no product was sold in 2002 enter "0" in columns 6, 7 & 9.

Section 26.0 - Outlets for livestock:

Using the codes enter the outlets for the sale of different livestock in order of importance. If there are, for example, only 2 outlets mark the rest with a "X".

Definitions and working page for page 18

General definitions for Section 28.0

Fish farming: Refers to the rearing/production of fish. It is different to fishing in that the fish have to be reared and fed in fish farming. Fishing traps or captures naturally occurring fish in rivers, lakes and the sea and should not be included in this section.

Question Specific Definitions (Section 28.2)

Production unit number (Col 1): A production unit is a pond river/lake which is treated as a separate entity for the production of fish eg it may be by virtue of manageable size, maturity of fish, type of fish etc. Eg a farmer may have 3 fish ponds. (each one is a separate production unit).

Frequency of stocking (Col 5): What is the number of times the farmer puts new fingerlings into the pond each year.

Fingerlings: These are young immature fish used for stocking ponds.

Sold: (Col 10 & 11)

If no fish were sold enter "0" in column 10 and 11)

Livestock Extension Services (Section 29.1)

Adopted (Col 3): This is the uptake of an intervention for 2 or more years

Livestock Extension Service providers (Section 29.2)

Contact Farmer: A farmer who is used by the extension services as a focal point to demonstrate new interventions to. The contact farmer then passes on the message to other farmers

Adopted (Col 5): This is the uptake of an intervention for 2 or more years

Working area for page 18

Definition and working page for page 19**Question specific definitions (Section 31.1)****Activity (Col 1):**

Land Clearing: Refers to removing trees/bush/grass prior to ploughing

Soil Preparation: Refers to the seedbed preparation (ploughing, harrowing, etc).

Cattle Rearing: Tending to cattle at home, eg assisting with births, castration, etc. Different livestock keeping activity to herding.

Cattle Herding: Moving livestock from place to place for grazing and water. If herding is carried out the respondent must also give a response to rearing/husbandry

Question Specific Definitions (Section 32.0.0)**Activity (Col 1):**

Subsistence: For the family's survival, rather than for the generation of cash. This includes feeding the hh, provision of water and fuel for cooking. The source of these products are usually from the land resources available to the family. Remember that not all cash earnings are for non subsistence purposes/activities as cash can be used to purchase subsistence items eg food.

Non -subsistence: Cash used for items and activities which are not crucial for the survival of the family. This includes modern medication, non working clothes, refined beer, school fees, etc.

Procedures for (Section 31.1)**Section 31.1 ((Labour use)**

1. For each listed activity in column 1, place a tick in column 2 if any member of the household was involved in that activity during the 2002/03 agriculture year.
2. After completing column 2 return to the first activity in row 27.1.1 and complete column 3.
3. Make sure you stress MAINLY responsible.

NOTE: If an activity has been mentioned previously in the questionnaire eg that the hh keeps chickens, make sure a response is obtained in the appropriate place ie poultry keeping.

If off-farm income generation is mentioned, check for responses to off farm income in other parts of the questionnaire

Section 32.0 - Subsistence vs Non-subsistence

1. For each listed activity in column 1, place a tick in column 2 if any member of the household was involved in that activity during the 2002/03 agriculture year.
2. After completing column 2 return to the first activity in row 32.1.1 and complete column 3 & 4. For each activity make an assessment of the percentage used for subsistence survival and the percent converted to cash for non subsistence goods and items.
3. Make sure you stress MAINLY responsible.

NOTE: Cross check the responses with previous sections in the questionnaire. eg if a response is given to remittances check for an entry in question 2.2.5

Definition and working page for page 20**Household facilities (Section 34):****Number of rooms used for sleeping in the household (Q 34.1)**

Include sitting room, dining room, kitchen, etc if used for sleeping. It also includes rooms outside the main dwelling

A room is defined as a space which is separate from the rest of the building by a permanent wall or division. A building/house that is not divided into rooms is considered to have one room.

Household assets (Q 34.2): these assets must be functioning. Do not include if broken.

Access to drinking water (Q 34.4): If there is more than one source, use the one, which the hh uses most frequently.

Main source of hh cash income:

Activity that provides the hh with the most cash during 2002/03 agriculture year.

